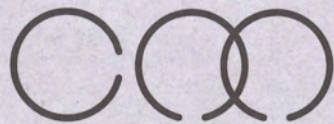




What is  
your favorite taste ?



Chord & Major

TONAL EARPHONE



# 「 The parallel development of Music & Sound Technology 」

Chord&Major is a unique audio brand.

The steps we take to improve sound quality go hand in hand with the latest technology. We delve deeply into the world of musical instruments and recording technology, and their final representation within the music they produce. We do this in order to understand the nature of various musical genres, and develop earphones that convey sound that is faithful to the original recording.



## What is Tonal Earphone?

C&M earphones can be analogized with wineglasses. Wineglasses come in various shapes for different wines such as red wine or white wine. Similarly, some earphones are suitable for classical music, and some for jazz. Using tonal earphones is like enjoying your wine with just the right glass—the glass shape will conduce to the very aroma and characteristics of wine, so wine-tasting will be not just a symbol of fashion but also an elegant delight.



## Can using Tonal Earphones really help me enjoy music more?

Have you ever heard such great music that gave you goose bumps, even an indescribable fervency, or filled your eyes with tears?

Before music can reach your brain, sound waves have to go through a long passage of transmissions. First the eardrums vibrate with the sound waves, then the vibration touches the cochlear hair cells and create stimulation to the hearing nerves, which pass the stimulation to the brain. To allow detailed, massive sound signals to reach the brain, earphones featuring high definition, superb audio depiction and wide frequency response are necessary, but not sufficient if the musical emotions and artistic sophistication created by musicians are to be conveyed.

Different music genres employ varied instrumentations, playing skills, recording techniques and stages. Moreover, each player interprets music in their own ways, bringing about different milieus and expressions.

Therefore, good earphones must be designed with frequency response curves and featured equalization correspondent with a specified music genre so that users may enjoy music to the fullest.

The below chart is an example of such frequency response curves. The left part is the representative frequency response curve for classical music, derived from Chord&Major analysis on music type, genre features, instrumental frequency response and instrumentation.

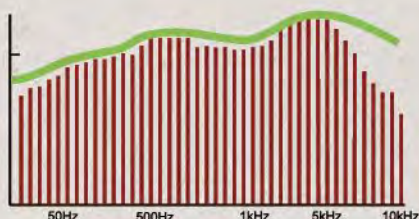
With the carefully determined curve as indicator, the next step is to utilize Chord&Major electro-audio technology to design the specifications, exclusive tonal components and hardware materials for the earphones.

As the frequency response curve of the earphones matches that of the music to the highest extent, the best of the music artistry can be conveyed. Conventional earphones often overemphasize bass range, causing interference or loss of details in midrange and treble. With Chord&Major Tonal Earphones, music lovers can easily choose the most suitable model according to their preferred music types and enjoy every detail of their favorite music.



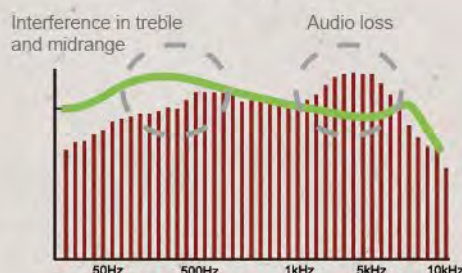
## Earphone Frequency Music Frequency

Tonal Earphones  
Tuning by music genre



Tonal Earphones express the artistry of music to its very best

Conventional Earphones



Overemphasis on bass results in the loss of details and clarity in midrange and treble



## Interview with Blaire Ko, Music Director of Chord&Major

### How were you introduced to Chord&Major? How did you become their music director?

I got to know C&M through a designer friend. Back then, they had already developed their first generation of tonal earphones specifically for jazz. Jazz being a music genre I am familiar with, I wanted to know, as a music professional, how they would present jazz and how they could design earphones just to suit the jazz style of music. After several exchanges with C&M staff, I came to realize their passion and devotion, as they put a lot of thoughts into many elements that I took for granted. As a musician I agree with their philosophy of designing earphones from the perspective of music, because this is one of the good ways to ensure the fidelity of delivery of artistry and integrity of music. I later joined them as the music consultant, offering them advice on music and tune arrangement, as well as on resource integration.

### Each type of tonal earphones has its unique tones and features. How do you define the tonal features for each of them?

Tuning up each tonal earphones is one of the grand challenges in my long years of musical profession. The most difficult thing is, music essentially has no borders, meaning all those styles and genres are results of post-hoc classification and tagging. A simple example - is music performed with violins considered classical music? Nowadays, orchestra bands are commonly seen in live pop concerts offering accompaniment, is that considered classical music? As for pianos, there are a variety of pianos such as jazz pianos, pop pianos and classical pianos; yet do these names come from subtle differences in the instruments themselves, or from the different styles of performance and music theory? To gain a steady theoretical background, we researched deep into the elements of various music styles, from their history and elaboration, to reception, recording, digitalization and mixing of sounds, as well as technical improvements and composing, arrangement, instrumentation and styling of each piece. Through real-time profiling, behind-the-scene shooting of albums and live concerts, we pursued and summarized the main aesthetics and features of each genres.

Take Classical music for example. Since a wide complexity of instruments is involved, you need a broad range of frequency response and high definition to present the details of each instrument. Considering the highly fluctuant dynamics common with classical music, you would also need a good transient response and control in the earphones to avoid cracking or distortion when volume and sound range abruptly rise.

When it comes to jazz, it is widely performed in small bars with recording carried on the spot. Therefore, we enhanced our Jazz Tonal Earphones with in-chamber reverberation effects to create immersive experiences for our audience. In order to emphatically present finger pickings of bass (e.g. slide, tremolo, double stops and harmonics), we also included soft, flexible bass features into the design.

Rock'n roll music values instrumentals as much as vocals, so we did not emphasize human voices. Instead, we amplified the performance for each instrument. Be it electric guitars screeching high-pitched tunes or sturdy drums punching with speed, we want to present every captivating aspect of Rock'n Roll.

As for the new Ballad Tonal model aimed at human vocals, we rejected the term "pop" because pop is not a clearly defined style, but rather a title for generally popular music in every era or period. With this model, we want to highlight beautiful human vocals, and hence the name ballad, which best stands for our idea. Elegant human vocals feature brightness, penetration, saturation, intricate characteristics and minimum coloration. Although stable recording quality is not guaranteed in popular music because of rapid production under pressure of mass demands, our audience may still experience the charm of Ballad Tonal model with moderate recording quality.



Blaire Ko, a Taiwanese composer, who won the Taiwan Golden Bell Award for Best Sound soundtrack, Melody Award for Best Hakka Album, was repeatedly nominated for Golden Melody Awards for Best Orchestra, Best Pop Instrumental Album, Eslite Selection Music, Taipei Times best album of the year among others has taught music composition at the Department of Music at National Taiwan Normal University.

His works range from classical to experimental music and also include concerts and soundtrack for theater, TV and cinema.

Continuing with music creation and experiments, Blaire Ko is not only widely favored by directors in various fields around the world, but also one of the few composers who is able to independently complete mass music production of multiple genres.





## Major 9'13      Classical

While drawing attention to the expressive qualities of every instrument, Major9'13 pays special attention to violins and wind instruments. Even when reproducing the complex, three-dimensional sound of an orchestra, it hones in on every instrument for the deepest enjoyment of classical music.



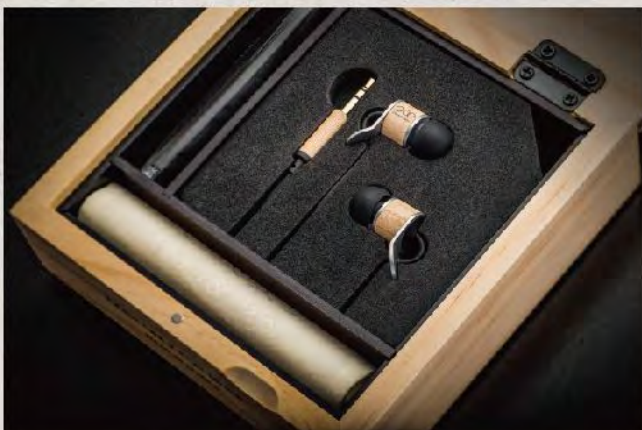
## Major 8'13      Rock

Be it clear, natural highs, or weighty, powerful lows, Major8'13 entices instruments to deliver their best. It metes out the finest details of powerful bass, clear guitars, and fast tempo drums.



## Major 7'13      Jazz

Smooth saxophone, passionate vocals, resonant oscillations of drum and bass: each is rendered delightfully by Major7'13. The deep bass overtones and velvety vocals that define the intimate space of a jazz club are Major7's forte.



## Major 6'13      Ballad

Major6'13 enhances the warmth and delicate nuance of the singer's voice. This character reflects the story behind the ballad in refined light, returning a sophisticated sound. Its well-balanced frequency response fashions vocals with great clarity, grace, and emotion.



## How To Choose the Tonal Earphone Best Serving Your Taste

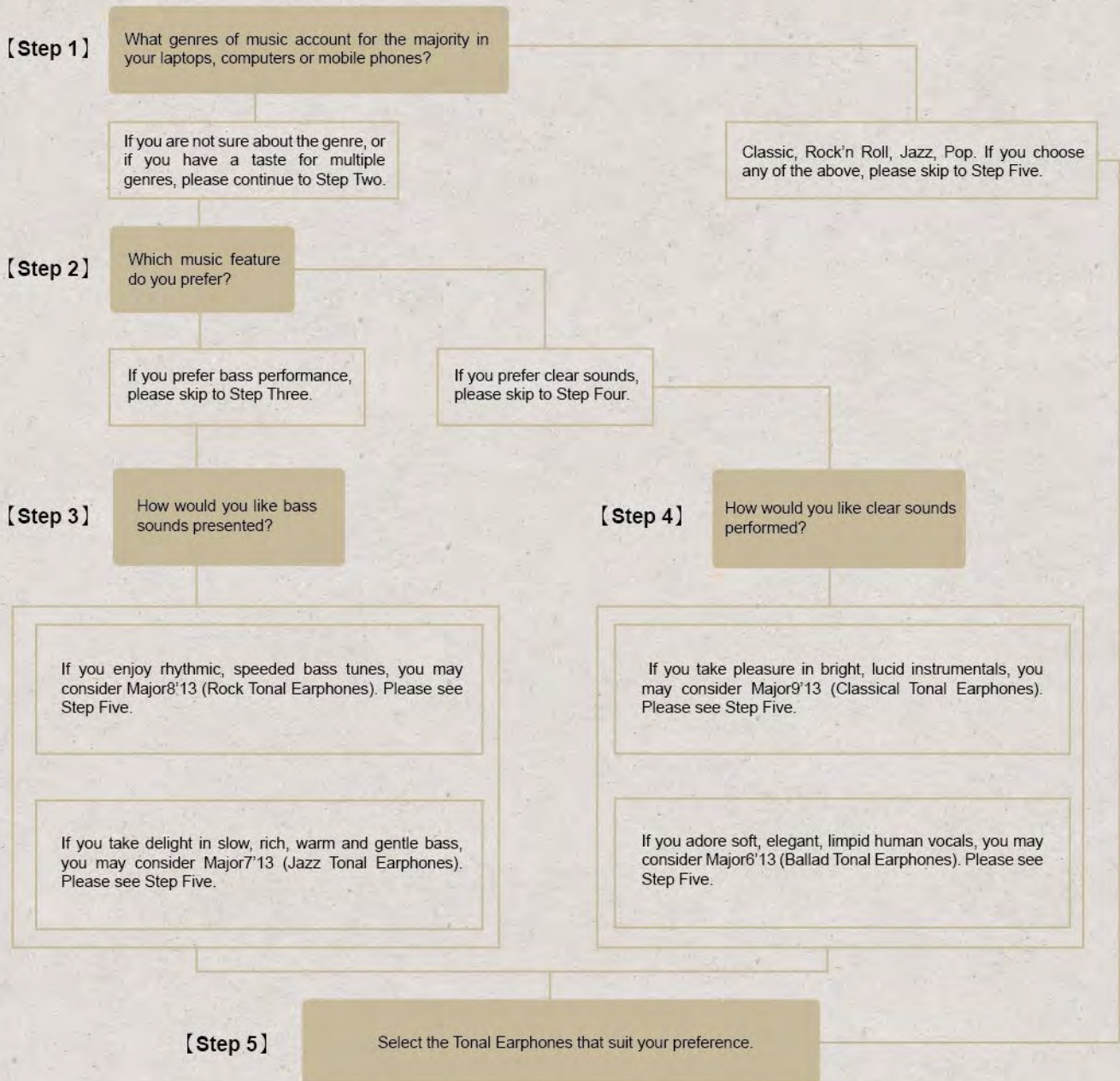
Having trouble choosing brand and model when you want to buy a quality set of earphones? Have you ever considered that the best strategy is choosing earphones based on your favorite music genres? The reason for Chord&Major to develop tonal earphones is to offer everyone a simple yet efficient way to solve this basic problem.

Different music genres consist of various instrumentations and styles, creating diverse inspirations. Good earphones are defined not just by stable quality, but also by precise delivery of music styles in details. Some may wonder, "I listen to a wide range of different music genres ranging from pop, Rock'n Roll to classical. What type of earphones should I choose? Will Classical tonal earphones also be good for Rock'n Roll?"



## What is your favorite taste ?

Here are five easy steps to help you find the tonal earphones serving your taste:



| Major9'13<br>(Classical Tonal Earphone)                            | Major8'13<br>(Rock Tonal Earphone)           | Major7'13<br>(Jazz Tonal Earphone) | Major6'13<br>( Ballad Tonal Earphone) |
|--|--|------------------------------------|---------------------------------------|
| High definition, detailed performance with good transient response | Strong bass with penetrating sense of rhythm | Thick, warm, gentle sound feature  | Clear, harmonious vocal               |





## - The Soul of Tonal Earphones - Chord&Major "Music Tonal Orientation System"

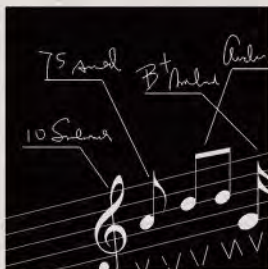
Chord&Major Tonal Earphones have been conceived thanks to our infinite passion for music, which is why, contrary to conventional design, we decided to develop our earphones in perspective of music genres. Through profound understanding of history, elements, features and presentation basis of various music genres, Music Tonal Orientation System of Chord&Major offers ample theoretical as well as practical frameworks, with which we are able to tune up a unique tonality for each of our Tonal Earphones while allowing compatibility with different genres.

We shall hence offer an introduction to the core of "Music Tonal Orientation System" to show how our research is related to the design of Tonal Earphones. The research is also shared in the "Tonal Library" section on our official website for music lovers who wish to gain more insight into music.

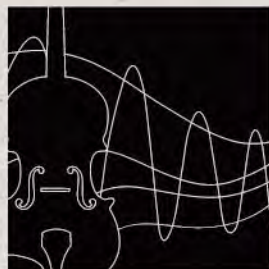
1. Style Analysis: Each music genre has its features in theory, but fusion with other musical elements often occur in the process of creation and progression, which might result in new styles or even terms. So when we analyze the styles of music, we focus on the main elements, including harmony, rhythms, tunes, dynamics and gamut. Results of the analysis are then applied to the design of dynamic response, sound field and timbre of the earphones.

2. Instrumentation Analysis: Each instrument has its own range of frequency response due to divergence in acoustic principle, structure and component material. As multiple, diverse instruments are engaged in performance, the auditory sensation derived from instrumentation and sound mixing is what we take for reference when determining the definition, separation and stereo specification of earphones.

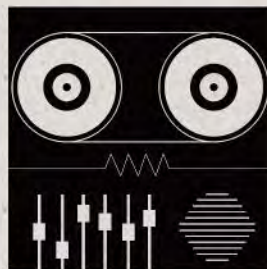
3. Recording Technique Analysis: Audio reception and recording techniques for each music genre vary considerably due to limits in performance sites and types. Take classical music for example. Since classical music typically involves complex instrumentation, the majority of which cannot be lined in, reception must be carried right on the spot. Historically, classical music serves as social entertainment for upper class people, so recording techniques and hardware are more sophisticated. By contrast, jazz originated from after-work leisure of working class who enjoy casual gigs at restaurants or taverns. Such gigs often lack stable quality and tuning of instruments, and the places are most likely full of hubbub. As a result, recording quality is usually low even with the assistance of reception, and music recorded often present higher reverberation or blurs, which are exactly what make jazz highly recognizable. Jazz instruments and recording techniques improve over time, but that hazy, relaxed ambience is still the most alluring aspect to jazz lovers. By gaining an understanding towards the differences and improvements of recording techniques, we are able to tune up different perception, timbre or reverberation style for our earphones.



**Musical Genre Analysis**  
Analyzing variations in harmony, rhythm, meter, tempo, dynamics, register, and instrumental color between various types of music.



**Orchestration Analysis**  
Analyzing each instrument's sonic spectrum.



**Recording Technology Analysis**  
Studying the systems and technologies used to record music.



**Sound / Musical Aesthetic Psychology**  
Understanding human auditory characteristics (the physiology of how humans hear) and analyzing musical psychology.



**Musical Expert Evaluation**  
Receiving evaluation and direction from composers, music recording directors, and producers.

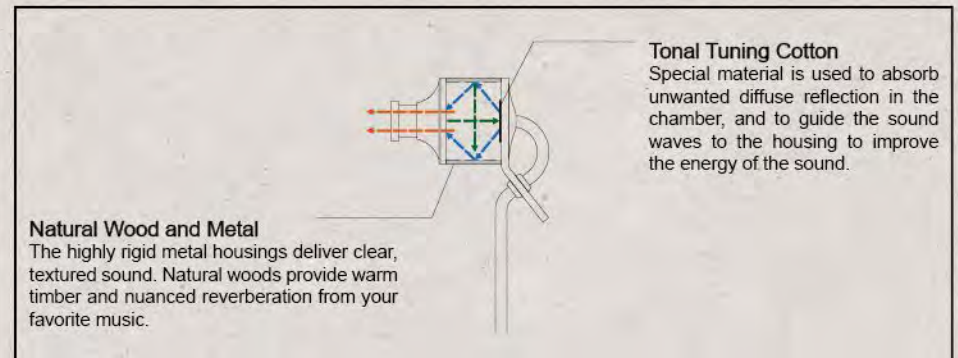


## Key Components of Creating Tonal Earphones - Speaker Driver

After we decided tonal features for each model, the next task is to find out how to design earphones corresponding to the exhibition of such sound quality. Contrary to conventional technical specifications or emphasis on a certain frequency band, we rivet more on the ultimate hearing sensation of the earphones, hoping to vividly present the details and features for each music genre. Components concerning the making, transmission, reflection of sound as well as isolation, ergonomics and hearing mechanics of human ears are all put into consideration when we proceed with the design. The most vital part is the design of earphone driver units.

So, how does the speaker driver work? When the earphone heart receives electrical signals from MP3 players, laptops or smartphones, its internal enameled wires react in a repulsive or attractive manner with magnet in the middle through electric current before generating vibrations, so that our eardrums (tympanic membrane) can sense sound vibration, then hear pleasant music. This is the physical principle of how moving-coil earphones function allowing us to hear music.

Now, let's take a deeper look at another issue: "How to tuning "tonal earphones" into different hearing flavors and sound qualities?" It has to be done with the coordination of all the parts inside the housing. The internal structure of a housing contains the elements that shape up the musical tonality. These ingredients are voice diaphragm, voice coil, magnet, compressed cotton and tuning paper.

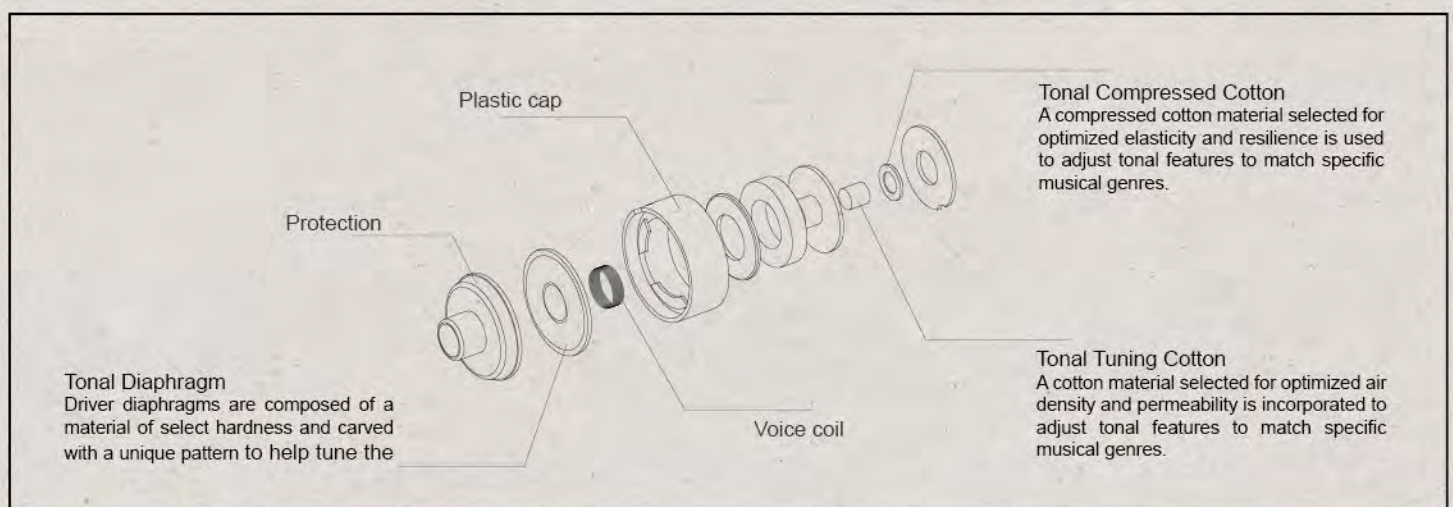


Among these ingredients, voice coil and voice diaphragm are glued together, so when music is played, electric currents pass through the voice coil (enameled wires) to generate magnetism, causing repulsions and attractions between the permanent magnet and washers, so that voice coil is triggered to push voice diaphragm to generate vibration of music.

On the surface of the voice diaphragm are several shallow notches, and the notch depth, quantity, shape, and material affect the "hardness" of the diaphragm. The harder the diaphragm is, the faster the vibration, thus producing "higher frequency and brighter" sound. On the other hand, if voice diaphragm has less notches or is made of softer material, it will have better elasticity and softness, thus producing slower vibration and exuding more "low frequency and reverberation" sound effects.

Therefore, in order to create earphones with stronger bass, such as the Major7'13 (jazz) and Major8'13 (rock), drivers with softer diaphragms are selected. Major9'13 (classic), on the other hand, adopts drivers with harder and faster vibration diaphragms. There is another catch - tuning paper and compressed cotton. These two components are decisive factors to the "transient response". When the driver receives music signals, it has to respond very precisely to the strength of the music and rapidly vibrate back and forth accordingly, so that musicality will not be distorted. The strength of music is constantly and instantly changing, and this feature is especially true to "classical music".

To create "tonal earphones" with different tastes, every component in the housing has to be appropriately coordinated and arranged proportionally with one another in order to spice up the exquisitely distinctive timbre features that a tonal earphone has to offer.

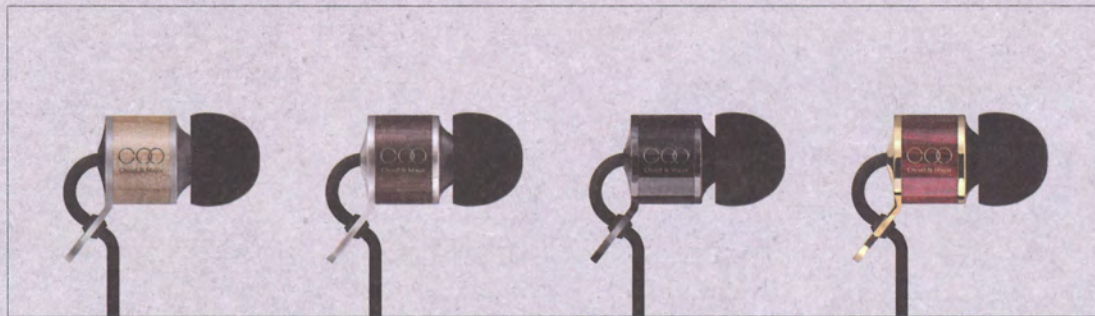


Learning more earphone knowledges on Chord&Major official website.

[www.chord-m.com](http://www.chord-m.com)







Ballad

Jazz

Rock

Classical

TONAL EARPHONE

EXIST ONLY FOR MUSIC