MIX
Professional Audio and Music Production

AKG C414B-XL II and C414B-XLS Microphones

FIELD TEST

by Barry Rudolph

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Since 1971, the original C 414 Comb's birth date, AKG has upgraded, optimized and improved this studio standard's specs and feature set when better electronic components and advanced manufacturing techniques became available. All parts are now surface-mount devices for increased reliability and lower production costs. (Only the capsule is hand-soldered.) Despite the fact that these new models come with more accessories, they are priced less than their predecessors: $999 for the C 414B-XLS, which replaces the C 414B-ULS introduced in 1986, and $1,099 for the C 414B-XL II, replacing the C 414B-TL II.

NUMEROUS UPGRADES

There are 15 new changes, yet the new transformerless 414s retain the same sonic character as before. Apart from the XL II's gold front grille vs. the silver grille on the XLS, everything else, including all internal electronics, is identical. The only distinction between the XLS and the XL II is a difference in the capsules to achieve the desired acoustical response for each version. The XL II has a slight increase in response above 3 kHz, which is said to be better for individual vocals and solo instruments miked at a distance, while the flatter XLS is better suited for instruments and group vocals.

Both capsules use 1-inch-diameter, edge-terminated, six-micron-thick dual diaphragms suspended in an elastic capsule shock-mount system. This built-in shock-mount decouples the capsule from the mic's body, minimizing externally introduced vibrations. The body is the double trapezoidal shape, but 10 percent larger with a 20-percent bigger grille. The grille comprises two layers of cross-polarized screening that reduces plosives and unusually catches and refracts light. The die-cast body has a flat, grayish-blue finish and rounded edges, which are said to reduce unwanted reflections.

FULL KIT

With lower manufacturing costs, AKG can offer the 414s in a handsome aluminum carrying case with the package. Standard accessories include the H85 elastic shock-mount (which grips any mic from 19.26 to 26 mm in diameter), Euro stand adapter, a square-shaped foam windscreen, external metal goose-necked two-stage pop filter that mounts to any mic stand or boom, dust cover, individual frequency plot of the mic and a multilanguage manual. There is also a stereo kit with two sets of these accessories and a stereo pair mounting bracket. The mics are also well-matched, and the typical sensitivity tolerance between any two mics is maintained to +/- 0.5 dB.

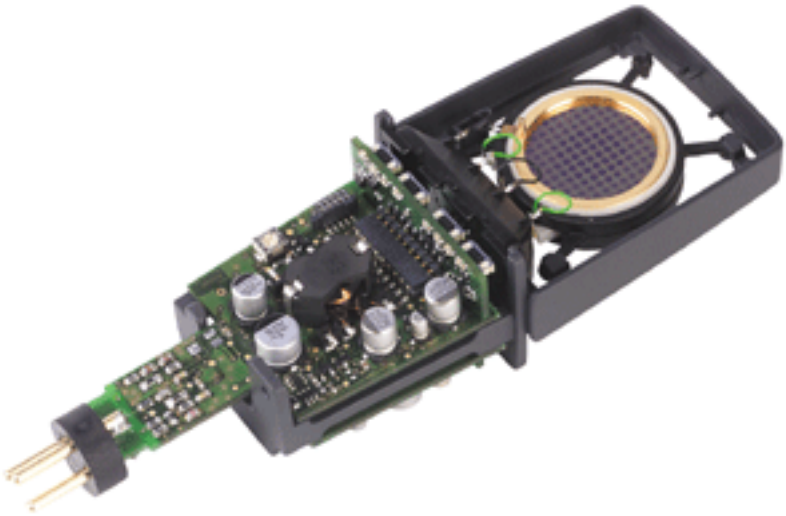
NEW FEATURES ABOUND

One obvious change is that the old mechanical switches for pattern, attenuator and lowpass filter have been replaced with nearly flush-mounted electronic pushbuttons. Simply push either end of the button to step through the patterns, attenuation settings or filter choices. Settings are remembered after disconnection from phantom, and you can lock/unlock all of your choices by holding down the Pattern button for three seconds; the LED blinks red to indicate lock or unlock. This is a valuable feature when you're quickly moving the mic's position and inadvertently touch a button. A recessed LED above each value or polar pattern shows your choice by lighting green. The pattern LED has a limited viewing angle and doubles as an "aiming" guide, useful when hanging the mic in dimly lit studios. Instead of telling singers to keep their "nose on the pattern switch" to stay on-mic, they can just aim at the LED.

The pattern LED also acts as an overload indicator, turning red when you are within 2 dB of clipping. To minimize the typical changeover noise when changing pattern or attenuator, there is a momentary mute period before the mic becomes active again. All switching is done in the low-impedance section of the head amp circuitry, preventing intermittent noise problems when the mic is operated in high-humidity situations.

The new 414s have five pattern choices: cardioid, hypercardioid, figure-8, omni and the new wide cardioid position. Attenuation choices are now 0, -6, -12 and -18 dB, with attenuation achieved by changing the polarization voltage to the capsule. The cheaper and more usual way is to use shunting capacitors across the capsule's output but this method produces low-level distortion. (No wonder I've always noticed a change in the sound of condenser mics with the attenuator pad switched in!) The new 414s have 6 dB more sensitivity, a low self-noise at 6 dBA and 134 dB of dynamic range.

The redesigned lowpass filter has positions at 0 (flat), -12 dB per octave @ 40 Hz, -12 dB per octave @ 80 Hz and -6 dB per octave @ 160 Hz. The highest position on the old mics offered too much roll-off. I'm glad to see this change.



Coming later this year is an R 414 remote controller/power supply that can control two microphones independently or together. All of the mic's switchable functions can be controlled in finer steps than on the microphone itself. You'll have access to 13 different polar patterns, 3dB steps for pre-attenuation and more. Controller commands to the microphone are sent over standard 3-wire XLR mic cables in short, coded tone bursts at supersonic frequencies.

IN THE STUDIO

First up was a solo acoustic guitar recording. As there were three passes (basic track and two overdubs), I used a different stereo miking technique for each without EQ or compression. For the basic tracks, I used an M/S pair without pads and the 40Hz roll-off. The slightly brighter XL II, in figure-8 pattern, was the side mic and the XLS was the mid. I got great

results with lots of low end, even though the pair was 18 inches away. The shock-mounts worked extremely well: no sound from foot stomping or rumble traveling up the stands.

I used two wide-space regular cardioids for the first overdub track. The mics were placed about two inches above my player's hands with the XL II at the middle of the neck and the XLS behind the sound hole. The second overdub used two similarly spaced omnis. For both setups, I used the 160Hz roll-offs to tame the cardioids' proximity effect and reduce the boomy bottom end. (The big-bodied acoustic was tuned down: to a C# for the low E string.) This technique produced a great sound--plenty to work with in a remix with different ambiences for each guitar part. I noticed a thump when selecting any roll-off and an occasional "pop" when changing patterns, but these were not severe.

On drums, I tried close-miking and a more traditional two-microphone setup: the XL II overhead about four feet above the kick drum without the roll-off, no pad and in wide cardioid. The XLS hovered just above the front of the kick (no front head) about 12 inches away, aimed down at the center at an angle to avoid the windblast. I didn't use the roll-off in wide cardioid, but with the -12dB pad--more in deference to the PreSonus M80 mic preamp that I used--it overloaded very easily. This setup produced a remarkable drum sound without EQ or compression on the '60s vintage Ludwig kit. The kick sounded close as if it was inside the drum but with more air. The rest of kit was well-balanced without any accentuated high frequencies.

The 414s were also great for close-miking the kit for a sampling/loop session. Although I usually don't use condensers in these situations, I put the XLS inside the kick with the foam windscreen on and set it to omni with the -12dB pad. This sounded more like how a dynamic would sound, except that I heard more player/beater imperfections with the 414. I put the XL II about six inches in front of the snare, just above the rim but below the hi-hat. The mic was switched to omni and did not engage the roll-off, but the -18dB pad was necessary. The snare sounded quite real with a good bottom end and a good balance between the top and bottom heads.

For vocals, I lined up the XL II, XLS and an older C 414EB P48. Set all to cardioid, no roll-off and no pad, a quick A/B showed the old 414 was darker and produced an occasional low midrange distortion peak compared to either new 414. Both new 414s had more output, were clearer-sounding, offered no distortion on peaks and let me hear all the way down into the noise floor of the studio without hearing microphone electronics. I used a Chandler EMI Channel mic pre and anywhere from 20 to 30 dB of mic gain without EQ.

My male singer is a high tenor and both mics sounded great on him. The XL II was brighter but without excessive sibilance or shrillness. A pop filter was not required, and the new grille pattern works for moderate wind. I recorded six vocal tracks, all at different distances and different polar patterns. All of my results were good and usable — it was hard not to get a

good sound with these mics. They also looked impressive in the dim studio with their bigger size, gleaming grilles and three LEDS glowing. The new wide cardioid pattern is the one to use for vocals as it seems more forgiving of "wandering" vocalists.

The best-sounding, all-purpose studio microphones to come along, the new C 414s are ready for action! They handled everything that I threw at them and returned superb-sounding recordings ready for mix.

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