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Call Progress Tone Standards

Telephone systems provide users with feedback about what they are doing in order to simplify operation and reduce calling errors. This information can be in the form of lights, displays, or ringing, but is most often some sort of audible tone heard on the phone line. These tones are generally referred to as call progress tones, as they indicate what is happening to dialed phone calls. Conditions like busy line, ringing called party, bad number, and others each have distinctive tone frequencies and cadences assigned them for which some standards have been established.

Standards for call progress tones are unfortunately applied differently in different situations or countries. The main groups of standards could be considered to be:

- (1) the United States
- (2) everyone else

Information on most schemes in use is available, and which tones will be encountered can be predicted fairly well by reviewing a few references.

Most tone standards vary with the country of application. In the U.S., the tones for Network are defined in Bellcore's

US Tone Plan as Listed in CCITT Fascicle 11.2

Tones	Frequencies (HZ) (Note a)				Power per frequency at exchange (note b) where tone is applied (note c)	Cadence
	350	440	480	620		
Dial tone	.	.			-13 dBm0	Continuous tone
Dial tone Modern PABX only	.	.			-16 dBm0 (note d)	Continuous tone
Recall dial tone		.	.		-13 dBm0	3 bursts of 0.1 s followed by a continuous tone (note c)
Recall dial tone Modern PABX only (note g)	.	.			-16 dBm0	3 bursts of 0.1 s followed by a continuous tone (note c)
Busy tone			.	.	-24 dBm0	Burst 0.5 s / silence 0.5 s
Busy tone Modern PABX only			.	.	-21 dBm0	Burst 0.5 s / silence 0.5 s
Reorder tone			.	.	-24 dBm0	Burst 0.25 s / silence 0.25 s
Reorder tone Modern PABX only			.	.	-21 dBm0	Burst 0.25 s / silence 0.25 s
Audible ringing tone		.	.		-19 dBm0	Burst 2 s / silence 4 s
Audible ringing tone Modern PABX only		.	.		-16 dBm0	Burst 1 s / silence 3 s
Call waiting tone		.			-13 dBm0	Burst 0.3 every 10 s
Call waiting tone Modern PABX only (note g)					-16 dBm0	A burst of 0.3 s Station call waiting
					-16 dBm0	2 bursts of 0.1 s (note c) Outside call waiting
					-16 dBm0	3 bursts of 0.1 s (note c) Urgent call waiting
Busy verification		.			-13 dBm0	A 2.0 s burst followed by 0.5 s bursts every 10 s
Busy verification Modern PABX only (note g)				.	-14 dBm0	Burst of 1.5 to 2.0 s followed by ... (note f)
Executive override Modern PABX only (note g)				.	-14 dBm0	Burst of 3.0 s
Confirmation tone	.	.			-13 dBm0	Burst 0.1 s / silence 0.1 s / burst 0.3 s
Confirmation tone Modern PABX only (note g)	.	.			-16 dBm0	3 burst 0.1 s (note c)

a) Frequency limits are $\pm 0.5\%$ of the nominal frequency.

b) PABX tone levels are measured at the PABX interfaces (typically at customer premises). Power levels are 2 dB lower for private line interfaces.

c) Power level tolerances are + 1.5 dB.

d) Tolerance level for PABX dial tone is + 0.75 dB.

e) Bursts are separated by 0.1 s.

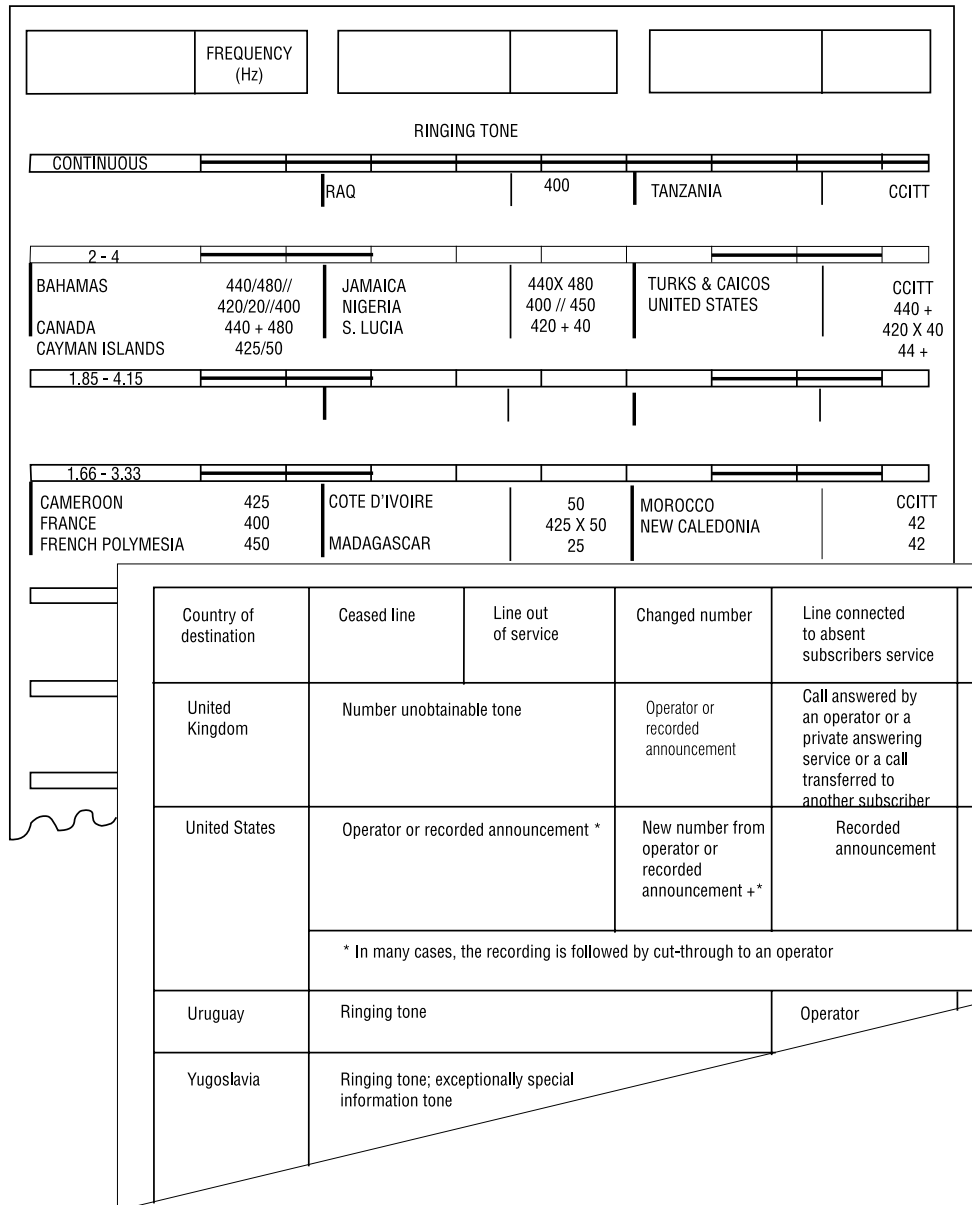
f) Burst of 1.5 to 2.0 s before attendant intervenes, followed by repeated bursts of 0.5 to 0.8 s, 8 to 20 s apart.

g) Tone applied at PABX station or private line interfaces and not at the exchange interfaces.

“BOC Notes on the LEC Networks”, and for PBX in the EIA’s RS-464 documentation. Outside the U.S., national Post, Telegraph, and Telephone (PTT) organizations set requirements for such signals, but they generally follow similar lines as regards frequency and cadence—the best reference in that case being the CCITT recommendations

that cover member countries (Blue Book, Volume II—Fascicle II.2, Supplements). The example pages from the Blue Book below show the completeness of the CCITT documentation. The CCITT document also shows the U.S. tone plan, but doesn’t provide the detail found in the AT&T publication.

Examples from Supplements of CCITT Fascicle 11.2





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