356E*Plus* ALTS Responder Specifications

356E*Plus* Line Interface

Input	2-wire loop
Holding	≤ 100 ma 42.5 to 105 V DC open circuit voltage
DC Blocking	150 V DC
Balance	>90 dB, 50–120 Hz, decreasing 6 dB/octave above 120 Hz
Termination	600Ω or 900Ω; return loss ≥30 dB from 200–4000 Hz, ≥15 dB from 20–5000 Hz
Return Loss Termination	600Ω or 900Ω (±1%) in series with 2.16 µF (3%) or custom termination

Send/Receive Performance

Send

Frequency Range	50–5000 Hz
Resolution	1 Hz
Accuracy	±0.5 Hz
Level Range	-40 to +10 dBm
Resolution	0.1 dB
Level Accuracy	1000 Hz, ±0.1 dB, -19 to 0 dBm
	50–5000 Hz, ±0.2 dB, -40 to +10 dBm
Distortion (THD)	1 kHz 70 dB, 0 dBm
	200–3700 Hz, -60 dB, -16 to 0 dBm
	100–5000 Hz, -50 dB, -40 to +10 dBm

Receive

Frequency Range	20–5000 Hz
Resolution	1 Hz
Accuracy	±1 Hz
Level Range	-50 to +10 dBm
Resolution	0.1 dB
Level Accuracy (terminated)	1000–1020 Hz, ±0.1 dB, -19 to 0 dBm
	200–5000 Hz, ±0.2 dB, -50 to +10 dBm
	20–200 Hz, ±0.5 dB, -50 to +10 dBm

Noise

Level Range	10–100 dBrn
Resolution	1 dB
Level Accuracy	±1 dB 20–100 dBrn; 6 dB 10–20 dBrn
Filters	C-message, C-notch, 3-kHz flat

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Noise-to-Ground

Level Range	40–130 dBrn
Resolution	1 dB
Level Accuracy	±1 dB 55–130 dBrn; 6 dB 40–55 dBrn
Filters	C-message, C-notch, 3kHz flat

Tests

3-Tone Gain Slope

Frequency	Programmable 50–5000 Hz
Level	-40 to 0 dBm
Loss	-2.0 dB to +20.0 dB
Accuracy	±0.2 dB

C-Message Noise

Range	10–90 dBrnC
Accuracy	±1 dB

C-Notch Noise

Frequency	1020 Hz
Holding Tone	-40 to 0 dBm
Range	20–70 dBrnC
Accuracy	±1 dB

Return Loss

Bands	ERL, SRL High, and SRL Low
Level	-40 to 0 dBm
Range	0–40.0 dB
Accuracy	±1 dB

3kHz Flat Noise

Range	20–90 dBrn
Accuracy	±1 dB
Filter	3 kHz flat

Phase and Amplitude Jitter

(standard and low frequency)

Frequency	1020 Hz
Level	-40 to 0 dBm
Filters	20–300 Hz or 4–300 Hz
Range	0–20.0% amplitude, 0°–20.0° phase
Accuracy	±5% of reading, ±0.2

Impulse Noise/Hits

Frequency	1020 Hz
Level	-40 to 0 dBm
Threshold	50–90 dBrnC
Spread	1–9 dB (±1 dB)
Phase Hit Threshold	5°–30° (±10%, ±5°)
Gain Hit Threshold	1–8 dB (±5 dB)
Test Length	1–99 minutes (each way)
Range	0–999 impulses/hits
Accuracy	±1 impulse/hit

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23-Tone Test

Transmitter

Composite Level	-40 to 0 dBm
Individual Tones	Level -13.6 dB below composite level Flatness ±0.2 dB Frequencies 203.125–3640.625 Hz in 156.25 Hz steps, ±10 ppm Phase per IEEE 743 ±0.25° Peak to RMS Ratio 8.79

Receiver

Range	-40 dBm to -6 dBm
Accuracy	±0.2 dB

Envelope Delay Distortion

Accuracy	±10 µs
Range	0–10,000 µs
Frequencies	281.15–3562.5 Hz in 156.25 Hz steps

Signal-to-Noise

±2 dB from 10–24 dB
±1 dB from 25–40 dB
±2 dB from 41–45 dB

Signal-to-Total Distortion

±2 dB from 10–24 dB
±1 dB from 25–40 dB
±2 dB from 41–45 dB

Intermodulation Distortion

(2nd and 3rd order)

±2 dB from 20–29 dB
±1 dB from 30–46 dB
±2 dB from 47–55 dB
±3 dB from 56–60 dB

PSQM

Send

Artificial voice	per ITU-T P.50
Level	20dBm
Genders	male and female

Receive

PSQM	0°6.5 ±.2
MOS	1°5 ±.2
Loss	0°-20dB

General 356E*Plus*

Weight	7 lbs., 12 lbs. shipping
Size	3.5” high x 17” wide x 10” deep
Humidity:	85% Noncondensing
Temperature	0°–50° C
Power	120 V AC, 60 Hz @ 0.2 Amp

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