

Module Comparison Chart for IEC 60268-21

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Chapter	Paragraph	Name	R&D Modules (Meas)	R&D Modules (SIM)	QC Modules	Test Templates	Used in Webinar "Acoustical Measurement of Sound System Equipment according to IEC 60268-21" session #	Comment
8		Test Signals						
8	1	Sinusoidal chirp	TRF	-	SPL, SPL-IMP		2, 4, 7, 8, 10, 11, 12, 15	
8	2	Steady-state single-tone signal	DIS, (MTON)	SIM	EQA		7, 8, 9, 11	
8	3	Steady-state two-tone signal	DIS, (MTON)	SIM	-		9, 11, 14	
8	4	Sparse multi-tone complex	MTON	-	MTD		5, 7, 9, 12, 14, 15	
8	5	Broadband noise signal	LAA	LSIM, SIM-AUR	SAN		5, 7, 13	
8	6	Narrow-band noise signal	MTON	LSIM, SIM-AUR	SAN		5, 6	
8	7	Hann-burst signal	TBM	SIM-AUR	-		7, 15	
9		Acoustical Environment						
9	1	Free-field conditions	Any	Any	Any		2, 1	
9	2	Half-space, free-field conditions	Any	Any	Any			
9	3	Simulated free-field conditions	TBM, TRF, NFS, ISC, DIS	-	SPL, SPL-IMP		2, 4, 5, 6, 15	
9	4	Half-space simulated free-field conditions	TBM, TRF, NFS, ISC, DIS	-	SPL, SPL-IMP			
9	5	Diffuse sound field conditions	Any	Any	Any			
9	6	Target application conditions	Any	Any	Any		13, 14	
10		Positioning of the DUT					1, 2, 15	
11		Measurement equipment and test results					1, 6	
11		Microphone Types	Any	-	Any			
11		Aspect Ratio	manual	manual	manual			
11		Preferred Frequencies	-	-	SPL, SPL-IMP, SAN			
12		Accuracy of the acoustical measurement					1, 5, 6, 14	See spec sheets for hardware and software
13		Mounting of the DUT					1	
14		Preconditioning	DIS, TRF, MTON	SIM	QC-PreCond.		15	
15		Rated ambient conditions			IO, Control-Task		1	
16		Rated frequency range					1, 15	
17		Input signal	PWT, LAA, MTON, TBM	SIM-AUR, LSIM	SAN	MTON Rated Umax based on SPLmax	5	
18		Sound-pressure output					3	
18	1	Rated maximum sound pressure	PWT, LAA, MTON, TBM	SIM-AUR, LSIM	SAN	MTON Max SPL	1, 5, 12, 15	See note1: "DUT small usage band: sinusoidal signal: MTON, Hann burst: TBM"
18	3	Short term maximum sound pressure level	MTON, LAA	SIM-AUR	MTD	MTON Short term max SPL	1, 7, 15	
18	4	Long term maximum sound pressure level	MTON, LAA	SIM-AUR	-	MTON Long term max SPL	1, 6, 7	
18	6	Sound-pressure level in a stated frequency band	MTON, TRF [*]	SIM-AUR, L-SIM	SAN, SPL [*] , SPL-IMP [*]	MTON SPL in stated frequency band	1, 5, 15	[*] using sine chirp
18	8	Mean sound-pressure level in a stated frequency range	TRF, STEP				8, 9, 10	rarely used level definition
19		component						
19	1	Transfer function	MTON, TRF, LAA	LSIM	SAN, MTD		2, 3, 4, 6, 8	
19	2	SPL frequency response	MTON, TRF, LAA, DIS	SIM, LSIM	SPL, SPL-IMP, (SAN), (MTD)	TRF SPL frequency response	2, 3, 4, 6, 8	
19	3	Time varying amplitude compression of the fundamental component	LAA, MTON, TRF [*] , STEP	-	SAN [*] , SPL [*] , SPL-IMP [*] , MTD [*]		7, 12, 14, 15	[*] 2step manual procedure
19	4	Amplitude compression at maximum input	LAA, MTON, TRF [*] , STEP	-	SAN [*] , SPL [*] , SPL-IMP [*] , MTD [*]	MTON Short term ampl. comp.	7, 12, 15	[*] 2step manual procedure
19	5	Corrections based on a free field reference measurement	ISC [*] , TRF ⁺ , MTON [§]	-	SPL ⁺ §, SPL-IMP ⁺ §		2, 4	[*] complex, ⁺ windowing [§] amplitude only room compensation
19	6	Effective frequency range	TRF + PPP, DIS [*] , LAA [*]	SIM [*] , SIM-AUR [*] , LSIM [*]	SAN [*] , SPL [*] , SPL-IMP [*] , MTD [*]			[*] manual process
19	7	Internal latency	TRF, LAA	-	SAN, SPL, SPL-IMP	TRF Internal latency	11	
20		Directional characteristics						

20	1	Direct sound field in 3D space	NFS, POL	SCN			2, 3	
20	2	Directional far field characteristics	NFS, POL				2, 3	
20	3,4	Acoustic output power (level)	NFS, POL	SCN			2, 3	
20	5	Mean acoustic output power in a frequency band						
20	6,7	Radiation and coverage angle	NFS, POL				2, 3	
20	8	Mean sound pressure level in an acoustical zone	NFS, (POL)				2, 3	
21		Harmonic distortion						
21	2	Nth-order harmonic component	TRF, DIS, (TBM, ISC)	SIM	SPL, SPL-IMP	QC SPL Harmonics, TRF Harmonics	8, 15	
21	3	Total harmonic components	TRF, DIS, (TBM, ISC)	SIM	SPL, SPL-IMP	QC SPL Harmonics, TRF Harmonics	8, 15	
21	4	Total harmonic distortion	TRF, DIS, (TBM, ISC, STEP)	SIM	SPL, SPL-IMP	QC SPL Harmonics HOHD, TRF Harmonics	8	
21	5	Higher-order harmonic distortion	TRF, STEP		SPL, ALD	QC SPL Harmonics HOHD, TRF Harmonics	8, 10	
21	6	Maximum sound pressure level limited by total harmonic distortion	DIS, TBM, TRF [*] , STEP	SIM [*]	SPL [*] , SPL-IMP [*]	DIS Max SPL	8, 4	* manual process
21	7	Nth-order equivalent input harmonic distortion component	TRF, STEP			TRF Harmonics EIHD	8	
21	8	Equivalent input total harmonic distortion	TRF, STEP			TRF Harmonics EIHD	8	
22		Two-tone intermodulation distortion						
22	2	Intermodulation distortion	DIS	SIM		DIS Intermodulation	9, 14	
22	3	Amplitude modulation distortion	DIS-Pro	SIM		DIS Pro Amplitude Mod	9, 14	
23		Multi-tone distortion	MTON, (LPM)		MTD	MTON Multitone	9, 12, 14, 15	
24		Impulsive distortion						
24	1	Impulsive distortion level	TRF		SPL, APL-IMP, ALD	QC SPL Impulsive peak	10, 12, 15	
24	2	Maximum impulsive distortion ratio	TRF, STEP		SPL, SPL-IMP	QC SPL Impulsive peak, TRF Pro Impulsive	10, 12, 15	
24	3	Mean impulsive distortion level	TRF		SPL, SPL-IMP	QC SPL Impulsive rms, TRF Pro Impulsive	10	
24	4	Crest factor of impulsive distortion	TRF, STEP		SPL, SPL-IMP	QC SPL Impulsive peak, TRF Pro Impulsive	10, 12, 15	
25		Stray magnetic fields						
25	1	Static component	BFS-Hardware + IMO					
25	2	Dynamic components	BFS-Hardware + IMO					