Critical Reporting Limits (LT)

For Hair Drug Laboratory Testing and Reporting of Results

a. Hair sample(s) tested for evidence of drug and/or excessive alcohol use (as per customer instructions) by Cellmark or Cellmark's appointed ISO17025 accredited laboratory using techniques known as liquid chromatography with tandem mass spectrometry (LC-MS/MS) and gas chromatography with tandem mass spectrometry (GC-MS/MS).

b. Results for drugs and alcohol markers will be reported in nanograms of drug per milligram of hair (ng/mg).

c. Alcohol marker analysis in hair (EtG and EtPa) can be used to indicate 'chronic excessive' alcohol consumption only (not abstinence).

d. For any result to be reported as detected, it will need to fall above the reporting 'cut-off' concentrations detailed below (these cut-off levels apply to the testing of hair samples received at Cellmark on or after 1st December 2025) which have been established using the Society of Hair Testing (SoHT) recommendations and the results of extensive laboratory validation.

e. The Uncertainty of Measurement (UM) at each quality control level is provided in the table below; the UM is not accounted for when reporting results.

f. Cellmark reserves the right to amend cut-off levels and update uncertainties if considered scientifically appropriate; customers will be kept informed.

g. Every test report will include details of each drug compound that has been tested for, along with the reporting cut-off level.

Table 1: Drugs

Drug/metabolite	Method	Reporting Cut-Off (ng/mg)	UM (± %)	Bias	Calibration Range (ng/mg)
Ecstasy Group					
Methylenedioxymethylamphetamine (MDMA)**	LC-MS/MS	0.2†	26%	+7.3%	0.1–10.0
Methylenedioxyamphetamine (MDA)	LC-MS/MS	0.2†	23%	+10.7%	0.1-10.0
3,4-Methylenedioxy-N-ethylamphetamine (MDEA)	LC-MS/MS	0.2	11%	+2.6%	0.1-10
Methamphetamine, including amphetamine					
Methamphetamine	LC-MS/MS	0.2†	21%	+10.4%	0.05-5.0
Amphetamine**	LC-MS/MS	0.2†	23%	+17.3%	0.05–3.0
Benzodiazepine Group					
Desmethyldiazepam**	LC-MS/MS	0.04	22%	+2.8%	0.02–2.0
Diazepam**	LC-MS/MS	0.04	19%	+3.5%	0.02–2.0
Oxazepam	LC-MS/MS	0.2	23%	+15.1%	0.1-10
Temazepam	LC-MS/MS	0.2	23%	+11.1%	0.1-10
Nitrazepam	LC-MS/MS	0.04	23%	-1.0%	0.02-2.0
Flunitrazepam	LC-MS/MS	0.04	26%	+3.0%	0.02-2.0
Buprenorphine Group					
Buprenorphine	LC-MS/MS	0.05	23%	-0.2%	0.025-2.5
Norbuprenorphine	LC-MS/MS	0.05	30%	+0.2%	0.025-2.5
Cocaine Group					
AEME**	LC-MS/MS	0.2	18%	+10.3%	0.1-10
Benzoylecgonine**	LC-MS/MS	0.05	19%	+2.6%	0.025–2.5
Cocaethylene**	LC-MS/MS	0.05	18%	+5.6%	0.025-2.5
Cocaine**	LC-MS/MS	0.5†	17%	+4.5%	0.2-20
Norcocaine**	LC-MS/MS	0.05	23%	+2.6%	0.025-2.5

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Drug/metabolite	Method	Reporting Cut-Off (ng/mg)	UM (± %)	Bias	Calibration Range (ng/mg)
New Psychoactive Substances					
Benzylpiperazine	LC-MS/MS	0.02	-	-	-
Methcathinone	LC-MS/MS	0.02	-	-	-
Methiopropamine	LC-MS/MS	0.02	-	-	-
2-Aminoindane (2-AI)	LC-MS/MS	0.02	-	-	-
Methylone	LC-MS/MS	0.02	-	-	-
Ethylone	LC-MS/MS	0.02	-	-	-
4-Fluroamphetamine	LC-MS/MS	0.02	-	-	-
p-methoxyamphetamine (PMA)	LC-MS/MS	0.02	-	-	-
Butylone	LC-MS/MS	0.02	-	-	-
p-methoxymethamphetamine (PMMA)	LC-MS/MS	0.02	-	-	-
4-Methylethcathinone	LC-MS/MS	0.02	-	-	-
6-APB	LC-MS/MS	0.02	-	-	-
5-APB	LC-MS/MS	0.02	-	-	-
Pentylone	LC-MS/MS	0.02	-	-	-
Methoxetamine	LC-MS/MS	0.02	-	-	-
Methylenedioxypyrovalerone (MDPV)	LC-MS/MS	0.02	-	-	-
5-MeO-DALT	LC-MS/MS	0.02	-	-	-
5-Iodo-2-aminoindane (5-IAI)	LC-MS/MS	0.02	-	-	-
4-Methoxyphencyclidine (4-MeO-PCP)	LC-MS/MS	0.02	-	-	-
Benzedrone	LC-MS/MS	0.02	-	-	-
Naphyrone	LC-MS/MS	0.02	-	-	-
Methadone Group					
EDDP**	LC-MS/MS	0.2	21%	+5.1%	0.1-10
Methadone**	LC-MS/MS	0.2†	20%	+3.3%	0.1-10
Opiate Group					
6-Acetylmorphine (6 AM)**	LC-MS/MS	0.2†	26%	+6.2%	0.1-10
Codeine**	LC-MS/MS	0.2†	23%	+6.6%	0.1-3.0
Dihydrocodeine**	LC-MS/MS	0.2†	22%	+9.3%	0.05–3.0
Morphine**	LC-MS/MS	0.2†	21%	+0.7%	0.1-10
Cannabis Group					
Delta-9-tetrahydrocannabinol (THC)**	GC-MS/MS	0.05†	27%	-1.0%	0.025-2.5
11-nor-9-carboxy-delta-9-THC**	GC-MS/MS	0.001	30%	+2.3%	0.0005-0.05

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Drug/metabolite	Method	Reporting Cut-Off (ng/mg)	UM (± %)	Bias	Calibration Range (ng/mg)
Delta-9-tetrahydrocannabinol (THC)**	LC-MS/MS	0.05†	22%	5%	0.025-2.5
11-nor-9-carboxy-delta-9-THC**	LC-MS/MS	0.001	26%	6%	0.0005-0.05
Ketamine Group					
Ketamine**	LC-MS/MS	0.2†	22%	+6.8%	0.1–10.0
Norketamine	LC-MS/MS	0.2	12%	+3.7%	0.1–10.0
Antidepressant Group					
Fluoxetine (Prozac)	LC-MS/MS	0.04	27%	+1.0%	0.02-1.6
Trazodone	LC-MS/MS	0.04	18%	+1.3%	0.02-1.6
Clozapine	LC-MS/MS	0.04	20%	+1.0%	0.02-1.6
Anti-Epileptic Group					
Gabapentin	LC-MS/MS	0.2	12%	+12.4%	-
Pregabalin	LC-MS/MS	0.2	15%	+13.1%	-
Spice Group					
JWH-018	LC-MS/MS	0.02	-	-	-
JWH-019	LC-MS/MS	0.02	-	-	-
JWH-073	LC-MS/MS	0.02	-	-	-
JWH-122	LC-MS/MS	0.02	-	-	-
JWH-250	LC-MS/MS	0.02	-	-	-
RCS-4	LC-MS/MS	0.02	-	-	-
RCS-8	LC-MS/MS	0.02	-	-	-
Single Compound Tests					
LSD	LC-MS/MS	0.04	19%	2.8%	0.02-1.6
Cathinone	LC-MS/MS	0.20	20%	+14%	0.1–4.0
Pethidine	LC-MS/MS	0.20	20%	+5.3%	0.1–10.0
Oxycodone	LC-MS/MS	0.20	15%	+3.95%	0.1–10.0
Tramadol**	LC-MS/MS	0.20†	22%	+8.4%	0.1–10.0
Mephedrone	LC-MS/MS	0.04	18%	+2.3%	0.02–1.6
Zolpidem (hypnotic)	LC-MS/MS	0.04	23%	+5.5%	0.02-1.6
Zopiclone	LC-MS/MS	0.20	15%	12%	0.1–10.0
Fentanyl	LC-MS/MS	0.02	20%	+1.5%	0.01-1.0

†: The cut-off level indicated is detailed in the SoHT Drugs of Abuse (DoA) consensus on hair analysis.
**: The analytes indicated are UKAS accredited.

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Table 2: Alcohol Markers

Compound	Method	Reporting Cut-off (pg/mg)	UM (± %)	Bias	Calibration Range (pg/mg)
Ethyl Glucuronide (EtG)**	LC-MS/MS				
0-1cm[Ø]		90	-	-	-
0-2cm[Ø]		45	-	-	-
0-3cm[†]		30	16%	+1.3%	12.5-1250
0-4cm		30	16%	+1.3%	12.5-1250
0-5cm		30	16%	+1.3%	12.5-1250
0-6cm[†]/body		30	16%	+1.3%	12.5-1250
Ethyl Palmitate (EtPa) **	LC-MS/MS				
0-1cm[Ø]		283	-	-	-
0-2cm[Ø]		317	-	-	-
0-3cm[†]		350	20%	-2.7%	125-2500
0-4cm[Ø]		383	-	-	-
0-5cm[Ø]		417	-	-	-
0-6cm[†]/body		450	19%	-1.7%	125-2500

[†]: The cut-off level indicated is detailed in the SoHT alcohol markers consensus on hair analysis.
**: The analytes indicated are UKAS accredited. Section lengths marked with [Ø] are analysed using the UKAS accredited analytical method, however the cut-off level applied is outside the scope of accreditation.

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