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***** G A M M A S P E C T R U M A N A L Y S I S *****
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Filename: C:\GENIE2K\CAMFILES_Madu\ALMERA_2019\Sample_#3-(250k)_2019_W

Report Generated On : 27/09/2019 14:40:12

Sample Title : Almera
Sample Description : ALMERA 2019-04
Sample Identification : Almera
Sample Type :
Sample Geometry :

Peak Locate Threshold : 3.00
Peak Locate Range (in channels) : 1 - 65535
Peak Area Range (in channels) : 1 - 8192
Identification Energy Tolerance : 1.500 keV

Sample Size : 1.000E+000 samp

Sample Taken On :
Acquisition Started : 18/07/2019 11:07:21

Live Time : 250000.0 seconds
Real Time : 250246.0 seconds

Dead Time : 0.10 %

Energy Calibration Used Done On : 04/03/2013
Efficiency Calibration Used Done On : 08/11/2010
Efficiency ID : F100AI3

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***** P E A K A N A L Y S I S R E P O R T *****
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Detector Name: DET01
Sample Title: Almera
Peak Analysis Performed on: 27/09/2019 14:40:12
Peak Analysis From Channel: 1
Peak Analysis To Channel: 8192

	Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
	1	105-	115	108.13	21.24	0.76	1.94E+003	87.75	1.97E+003
	2	156-	170	162.86	32.05	0.92	2.15E+003	126.43	4.79E+003
	3	180-	192	184.40	36.30	0.70	5.20E+002	100.46	3.63E+003
M	4	228-	277	236.01	46.50	0.99	5.03E+002	57.27	3.91E+003
m	5	228-	277	256.39	50.52	1.00	1.15E+002	48.42	4.02E+003
m	6	228-	277	270.39	53.29	1.00	4.77E+002	57.99	4.10E+003
	7	290-	298	293.07	57.77	0.39	6.00E+001	75.08	2.60E+003
	8	312-	326	320.91	63.26	0.69	6.65E+002	116.67	4.50E+003
M	9	372-	408	379.57	74.85	0.84	1.73E+003	69.00	4.37E+003
m	10	372-	408	390.85	77.08	0.84	2.71E+003	77.18	4.39E+003
m	11	372-	408	401.67	79.21	0.85	1.82E+002	50.30	4.15E+003
M	12	421-	480	427.21	84.26	1.29	2.73E+002	61.81	4.82E+003
m	13	421-	480	442.14	87.21	1.29	1.06E+003	68.72	5.99E+003
m	14	421-	480	455.70	89.89	1.30	1.86E+003	75.52	6.25E+003
m	15	421-	480	471.26	92.96	1.30	4.17E+003	95.82	5.90E+003
	16	494-	513	504.02	99.43	0.77	8.26E+002	139.26	5.30E+003
	17	526-	543	533.76	105.30	1.41	8.29E+002	127.85	4.76E+003
	18	646-	660	654.03	129.06	0.81	9.65E+002	115.43	4.29E+003
	19	719-	733	728.00	143.67	0.76	2.81E+002	108.19	3.97E+003
	20	775-	788	779.94	153.93	0.50	2.55E+002	101.08	3.61E+003
	21	932-	950	941.17	185.77	1.11	1.57E+003	132.41	4.72E+003
	22	1001-	1010	1005.04	198.39	0.74	6.70E+001	74.51	2.43E+003
	23	1049-	1067	1059.77	209.20	0.96	1.31E+003	123.17	4.11E+003
	24	1094-	1105	1098.78	216.90	0.28	2.18E+001	77.29	2.37E+003
M	25	1201-	1234	1208.36	238.55	1.05	2.58E+003	70.08	2.70E+003
m	26	1201-	1234	1224.73	241.78	1.06	8.30E+002	50.73	2.85E+003
	27	1356-	1377	1368.36	270.15	0.88	1.11E+003	115.50	3.26E+003
M	28	1488-	1529	1494.78	295.12	1.03	1.43E+003	57.74	2.04E+003
m	29	1488-	1529	1519.32	299.97	1.04	1.24E+002	37.46	2.28E+003
	30	1648-	1670	1660.53	327.86	1.17	7.40E+002	106.58	2.74E+003
	31	1703-	1721	1712.85	338.19	1.18	2.90E+003	101.97	2.22E+003
	32	1770-	1791	1781.57	351.77	1.16	2.48E+003	108.00	2.45E+003
	33	2062-	2083	2073.10	409.35	1.16	4.58E+002	90.96	2.08E+003
	34	2332-	2354	2344.06	462.86	1.02	8.31E+002	93.38	2.03E+003
	35	2427-	2442	2432.07	480.25	0.30	1.05E+002	60.04	1.16E+003
	36	2573-	2600	2586.65	510.78	2.45	3.72E+003	112.99	2.01E+003
M	37	2838-	2919	2850.62	562.92	1.53	3.63E+002	35.82	1.31E+003
m	38	2838-	2919	2882.74	569.26	1.53	5.31E+002	37.98	1.25E+003
m	39	2838-	2919	2912.89	575.22	1.54	1.13E+002	28.86	9.47E+002
	40	2939-	2966	2952.84	583.11	1.12	9.07E+002	87.40	1.50E+003
M	41	3048-	3096	3061.67	604.60	1.34	2.45E+003	59.18	1.29E+003
m	42	3048-	3096	3084.90	609.19	1.34	1.81E+003	52.88	1.35E+003

	Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
	43	3336	3363	3350.18	661.59	1.39	1.24E+004	135.04	1.29E+003
	44	3670	3696	3681.42	727.01	0.29	3.76E+002	63.91	8.47E+002
	45	3816	3833	3825.01	755.37	0.83	7.89E+001	45.11	6.01E+002
	46	3901	3918	3910.52	772.26	0.37	1.60E+002	44.20	5.50E+002
M	47	4014	4076	4028.89	795.64	1.80	2.23E+003	54.65	7.98E+002
m	48	4014	4076	4062.54	802.29	1.80	2.75E+002	28.37	8.56E+002
M	49	4213	4267	4227.86	834.94	1.63	5.11E+003	75.77	6.48E+002
m	50	4213	4267	4255.25	840.35	1.63	1.69E+002	23.17	6.03E+002
	51	4598	4630	4614.46	911.30	1.51	3.15E+003	82.61	7.18E+002
M	52	4875	4923	4886.14	964.96	1.63	4.99E+002	30.20	5.66E+002
m	53	4875	4923	4907.48	969.18	1.63	1.74E+003	47.19	5.07E+002
	54	5663	5688	5674.16	1120.61	1.60	4.77E+002	45.53	3.73E+002
	55	5841	5860	5850.78	1155.49	0.75	9.59E+001	31.16	2.49E+002
	56	6264	6282	6272.34	1238.75	0.86	1.13E+002	32.70	2.82E+002
M	57	7276	7314	7284.24	1438.62	0.93	2.89E+001	11.02	1.41E+002
m	58	7276	7314	7307.37	1443.19	0.93	3.85E+001	10.65	1.01E+002
	59	7382	7420	7401.14	1461.71	1.92	6.46E+002	54.94	4.05E+002
	60	7640	7656	7648.28	1510.52	0.62	7.34E+001	21.87	1.30E+002
M	61	8034	8080	8046.59	1589.19	1.99	2.36E+002	21.89	2.44E+002
m	62	8034	8080	8070.91	1594.00	1.99	4.63E+001	15.53	2.58E+002

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

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***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
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Sample Title: Almera
Nuclide Library Used: C:\GENIE2K\CAMFILES\ALM18.NLB

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (Bq /samp)	Activity Uncertainty
NA-22	0.556	511.00*	179.79	8.57729E-002	2.10167E-002
		1274.54	99.94		
K-40	0.937	1460.75*	10.67	2.10837E-001	3.99691E-001
MN-54	0.999	834.83*	99.97	1.91671E+000	4.80126E-002
CS-134	0.953	475.35	1.46		
		563.23*	8.38	1.18012E+000	1.18752E-001
		569.32*	15.43	9.45685E-001	7.03423E-002
		604.70*	97.60	7.22561E-001	2.26586E-002
		795.84*	85.40	9.39027E-001	3.02032E-002
		801.93*	8.73	5.42072E-001	2.43608E-001
		1038.57	1.00		
		1167.94	1.80		
		1365.15	3.04		
CS-137	1.000	661.66*	85.21	4.50618E+000	1.03629E-001
PB-210	1.000	46.54*	4.06	1.46826E-001	1.45692E-001

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 1.500 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.000 sigma

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***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
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Nuclide Name	Nuclide Id Confidence	Wt mean Activity (Bq /samp)	Wt mean Activity Uncertainty
NA-22	0.556	8.577293E-002	2.101675E-002
K-40	0.937	2.108370E-001	3.996912E-001
MN-54	0.999	1.916713E+000	4.801256E-002
CS-134	0.953	8.145984E-001	1.839531E-002
CS-137	1.000	4.506183E+000	1.036289E-001
PB-210	1.000	1.468256E-001	1.456922E-001

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 27/09/2019 14:40:12
Peak Locate From Channel: 1
Peak Locate To Channel: 8192

	Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
	1	21.24	3.8623E-003	11.48		
	2	32.05	8.6169E-003	5.87		
	3	36.30	2.0814E-003	19.31		
m	5	50.52	4.6106E-004	42.01		
m	6	53.29	1.6852E-003	19.97	Tol.	BA-133
	7	57.77	2.4002E-004	125.13		
	8	63.26	-9.7163E-004	-52.52		
M	9	74.85	6.9214E-003	3.99		
m	10	77.08	9.7661E-003	4.11		
m	11	79.21	7.2995E-004	27.56	Tol.	I-131 BA-133
M	12	84.26	1.0907E-003	22.67		
m	13	87.21	4.2480E-003	6.47	Tol.	CS-136
m	14	89.89	7.4286E-003	4.07		
m	15	92.96	8.5120E-003	6.75	Sum	
	16	99.43	3.3056E-003	16.85		
	17	105.30	3.3163E-003	15.42		
	18	129.06	3.8605E-003	11.96		
	19	143.67	4.4681E-004	102.79		
	20	153.93	1.0194E-003	39.66	Tol.	CS-136
	21	185.77	1.5425E-003	42.81		
	22	198.39	2.6788E-004	111.25		
	23	209.20	5.2335E-003	9.41		
	24	216.90	8.7016E-005	355.27		
M	25	238.55	8.3260E-003	4.87		
m	26	241.78	3.3213E-003	6.11		
	27	270.15	4.4431E-003	10.40		
M	28	295.12	5.7209E-003	4.04		
m	29	299.97	4.9591E-004	30.21		
	30	327.86	2.9607E-003	14.40		
	31	338.19	1.1614E-002	3.51		
	32	351.77	9.3017E-003	5.10		
	33	409.35	1.8300E-003	19.88		
	34	462.86	3.3254E-003	11.23		
	35	480.25	4.2019E-004	57.16		
m	39	575.22	4.5201E-004	25.54		
	40	583.11	2.9732E-003	13.11		
m	42	609.19	6.5698E-003	4.31	Sum	
	44	727.01	1.5032E-003	17.01		
	45	755.37	3.1560E-004	57.17		
	46	772.26	6.3993E-004	27.63		
m	50	840.35	6.7462E-004	13.74		
	51	911.30	1.2268E-002	2.99		
M	52	964.96	1.9952E-003	6.06		
m	53	969.18	6.7427E-003	3.34		
	54	1120.61	1.8510E-003	11.62		

	Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
	55	1155.49	3.8354E-004	32.50		
	56	1238.75	4.5226E-004	28.92		
M	57	1438.62	1.1553E-004	38.14	Sum	
m	58	1443.19	1.5402E-004	27.66		
	60	1510.52	2.9376E-004	29.78		
M	61	1589.19	9.4209E-004	9.29		
m	62	1594.00	-2.9103E-005	-373.17		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

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***** NUCLIDE MDA REPORT *****
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Detector Name: DET01
Sample Geometry:
Sample Title: Almera
Nuclide Library Used: C:\GENIE2K\CAMFILES\ALM18.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (Bq /samp)	Nuclide MDA (Bq /samp)	Activity (Bq /samp)
+	NA-22	511.00*	179.79	6.8371E-002	6.84E-002	8.5773E-00
		1274.54	99.94	7.4108E-002		-8.3930E-00
+	K-40	1460.75*	10.67	1.3251E+000	1.33E+000	2.1084E-00
	CO-58	810.78	99.45	6.7969E-002	6.80E-002	2.3783E-00
>		1674.73	0.52	0.0000E+000		0.0000E+00
	CO-60	1173.23	99.85	7.3033E-002	7.30E-002	-2.4069E-00
		1332.50	99.98	7.4012E-002		1.0822E-00
	I-131	80.18	2.62	1.5952E+000	8.57E-002	-8.3925E-00
		284.30	6.06	1.0878E+000		1.3273E-00
		364.48	81.20	8.5652E-002		-2.4453E-00
		636.97	7.27	1.1380E+000		1.2333E+00
		722.89	1.80	4.5814E+000		3.5919E+00
	BA-133	53.16	2.20	1.2823E+000	1.02E-001	-3.5069E-00
		79.62	2.62	1.4757E+000		4.2491E-00
		81.00	34.10	1.0183E-001		-5.7631E-00
		160.61	0.64	7.6816E+000		6.7433E+00
		223.23	0.45	1.2590E+001		-5.7580E+00
		276.40	7.16	8.1082E-001		2.3688E-00
		302.85	18.33	3.2509E-001		-3.0657E-00
		356.02	62.05	1.1669E-001		1.2759E-00
		383.85	8.94	7.0400E-001		-2.2764E-00
+	CS-134	475.35	1.46	4.9124E+000	5.00E-002	-3.9792E-00
		563.23*	8.38	5.5598E-001		1.1801E+00
		569.32*	15.43	2.9717E-001		9.4569E-00
		604.70*	97.60	5.0032E-002		7.2256E-00
		795.84*	85.40	5.6371E-002		9.3903E-00
		801.93*	8.73	9.2542E-001		5.4207E-00
		1038.57	1.00	7.3587E+000		4.6300E+00
		1167.94	1.80	4.0995E+000		7.9731E-00
		1365.15	3.04	2.5403E+000		2.0051E+00
	CS-136	66.88	4.79	6.8660E-001	7.29E-002	-4.4578E-00
		86.36	5.18	7.9573E-001		-3.9753E+00
		153.25	5.75	9.3703E-001		1.3804E+00
		163.92	3.39	1.5762E+000		-4.7368E-00
		176.60	10.00	5.7297E-001		1.1571E-00
		273.65	11.10	6.0462E-001		-6.1789E-00
		340.55	42.20	2.0112E-001		1.3790E+00
		818.51	99.70	7.2905E-002		-9.9901E-00
		1048.07	80.00	9.5298E-002		-6.2968E-00
		1235.36	20.00	4.4686E-001		2.5548E-00
+	CS-137	661.66*	85.21	9.1973E-002	9.20E-002	4.5062E+00
+	PB-210	46.54*	4.06	6.2734E-001	6.27E-001	1.4683E-00

Nuclide Name	Energy (keV)	Yield (%)	Line MDA (Bq /samp)	Nuclide MDA (Bq /samp)	Activity (Bq /samp)
AM-241	26.34	2.31	2.3000E+000	8.10E-002	-3.6136E+00
	59.54	35.92	8.1036E-002		4.6413E-00

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated
@ = Half-life too short to be able to perform the decay correction