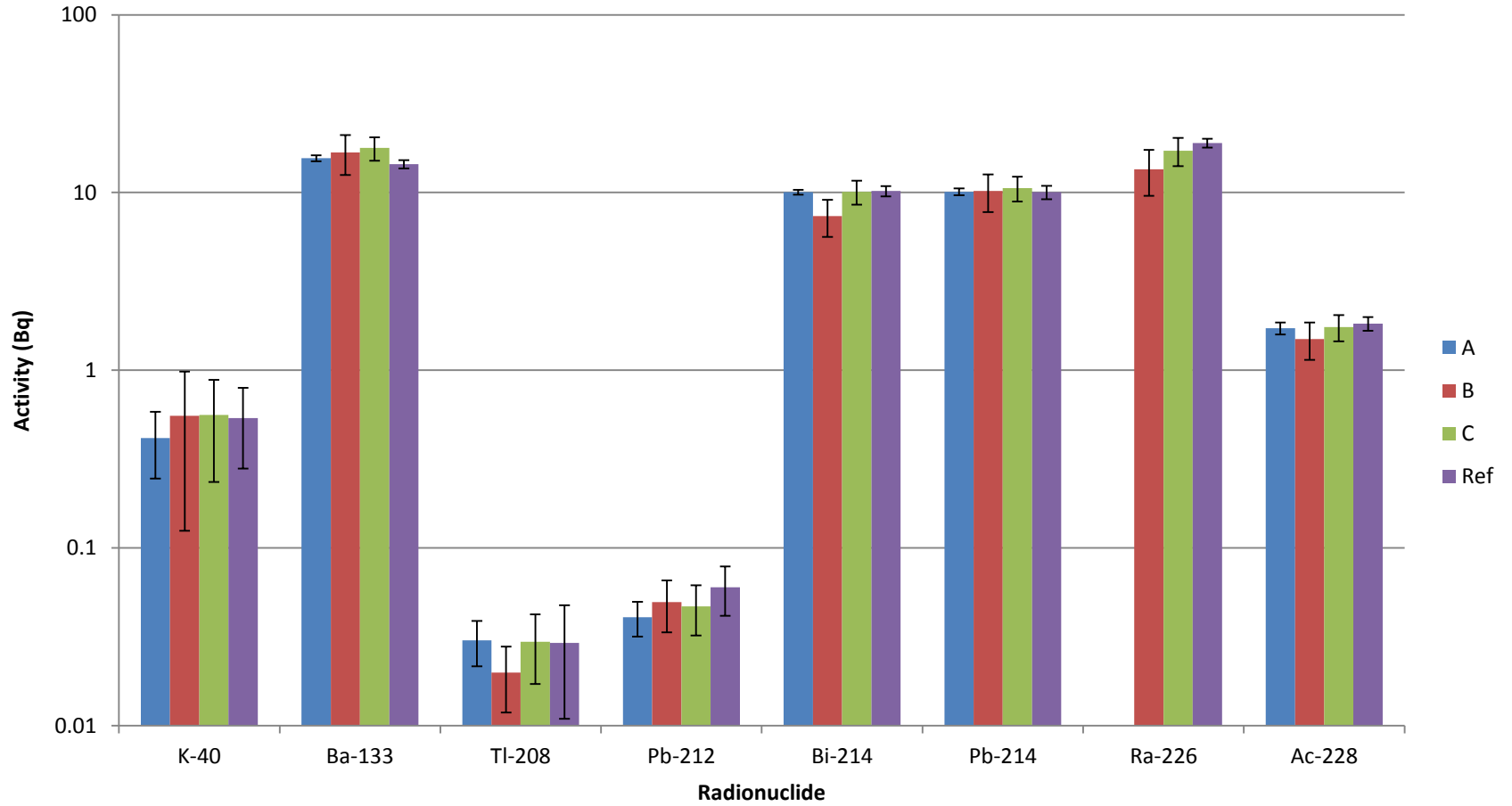


GammaSpec 2017 Exercise 2a

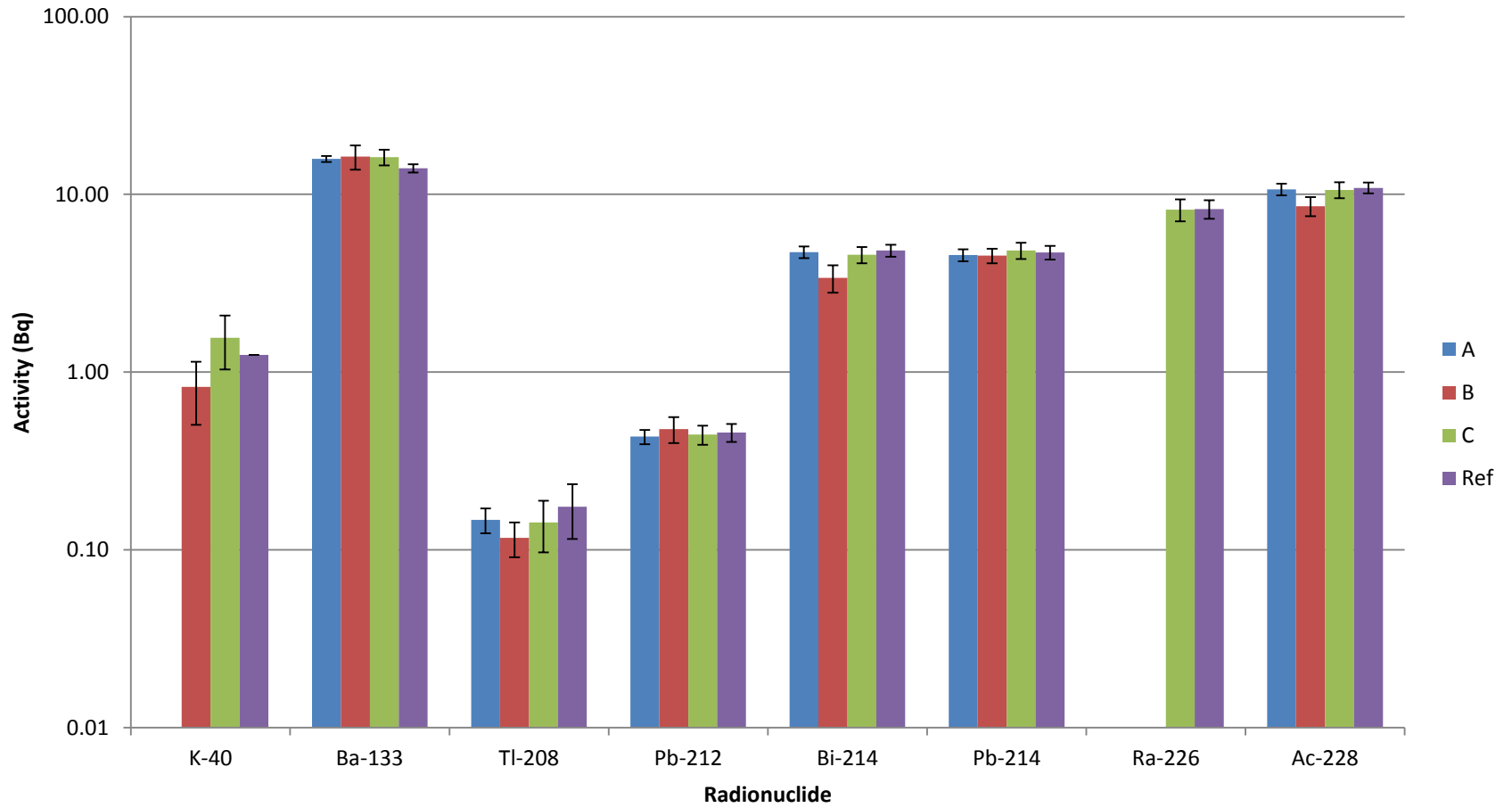
Comparison and evaluation of results

Sven Nielsen, DTU Nutech

Sample B



Sample A



Radionuclides in samples B and A showing reference values (ref) and results from 3 Participants (A, B, C). Uncertainties U expanded (k=2), $En=(V_{rep}-V_{ref})/\sqrt{(U_{rep}^2+U_{ref}^2)}$.

Smp B	Ref (Bq)		A(Bq)		B(Bq)		C(Bq)		En(A)	En(B)	En©
	Value	U(val)	Value	U(val)	Value	U(val)	Value	U(val)			
K-40	0.54	0.26	0.42	0.17	0.56	0.43	0.56	0.32	-0.4	0.0	0.1
Ba-133	14.4	0.8	15.6	0.6	16.8	4.3	17.8	2.7	1.2	0.5	1.2
Tl-208	0.03	0.02	0.03	0.01	0.02	0.01	0.03	0.01	0.0	-0.5	0.0
Pb-212	0.06	0.02	0.04	0.01	0.05	0.02	0.05	0.01	-0.9	-0.4	-0.6
Bi-214	10.2	0.7	10.0	0.3	7.4	1.7	10.1	1.6	-0.2	-1.5	-0.1
Pb-214	10.0	0.9	10.1	0.4	10.2	2.4	10.6	1.7	0.1	0.1	0.3
Ra-226	19.0	1.1			13.5	3.9	17.2	3.1		-1.4	-0.5
Ac-228	1.8	0.2	1.7	0.1	1.5	0.4	1.8	0.3	-0.5	-0.8	-0.2

Smp A	Ref(Bq)		A(Bq)		B(Bq)		C(Bq)		En(A)	En(B)	En©
	Value	U(val)	Value	U(val)	Value	U(val)	Value	U(val)			
K-40	1.3			0	0.8	0.3	1.6	0.5			
Ba-133	14.0	0.8	15.8	0.6	16.3	2.5	16.2	1.6	1.9	0.9	1.2
Tl-208	0.17	0.06	0.15	0.02	0.12	0.03	0.14	0.05	-0.4	-0.9	-0.4
Pb-212	0.46	0.05	0.43	0.04	0.48	0.08	0.45	0.05	-0.4	0.2	-0.2
Bi-214	4.8	0.4	4.7	0.4	3.4	0.6	4.6	0.5	-0.2	-2.0	-0.4
Pb-214	4.7	0.4	4.6	0.4	4.5	0.4	4.8	0.5	-0.3	-0.3	0.2
Ra-226	8.3	1.0					8.2	1.2			0.0
Ac-228	10.9	0.8	10.7	0.8	8.6	1.1	10.6	1.1	-0.2	-1.8	-0.2

Observations

- Results reported by three participants only
- Good agreement of results between participants and with reference values
- Good agreement of results for sample A requiring transfer of detector efficiency between different sample geometries