

**ATTACHMENT A-13**

**ESTIMATES OF EFFECTIVE DOSE TO PEOPLE  
IN JAPAN FOR THE FIRST YEAR AFTER THE  
ACCIDENT AT THE FUKUSHIMA DAIICHI NUCLEAR  
POWER STATION**

UNSCEAR 2020/2021 Report, Annex B, Levels and effects of radiation exposure  
due to the accident at the Fukushima Daiichi Nuclear Power Station: implications  
of information published since the UNSCEAR 2013 Report

**Contents**

This attachment provides summary tables for the Committee's estimates of effective doses in Japan for the first year after the Fukushima Daiichi Nuclear Power Station accident. These summaries are provided for each age group (adults, 10-year-old children and 1-year-old infants) for non-evacuated municipalities within Fukushima Prefecture, some municipalities within neighbouring prefectures (Ibaraki, Miyagi, Tochigi and Yamagata) and for prefectures in the rest of Japan.

The population data are taken from the Japan Census [MIC, 2011].

**Notes**

For consistency, doses in this attachment are quoted, in general, to two significant figures. This should not be interpreted as an indication of their precision that is often much less.

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This publication has not been formally edited.



**Table A-13.1. Effective doses to adults in the first year after the accident for Fukushima Prefecture (excluding evacuated areas)**

Municipality	Population in 2010 (persons)	Average deposition density of $^{137}\text{Cs}$ on soil (Bq/m <sup>2</sup> )	Estimated effective doses to adults (mSv)					
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total	
			Mean	Mean	Mean	Mean	Mean	5%ile
<b>Fukushima Prefecture</b>								
Aizubange Machi	17 918	39 454	<0.001	0.65	0.007	0.036	0.69	0.41
Aizumisato Machi	24 631	14 523	<0.001	0.25	0.006	0.036	0.30	0.17
Aizuwakamatsu Shi	131 928	24 878	<0.001	0.51	0.007	0.036	0.55	0.33
Asakawa Machi	7 402	23 748	0.001	0.42	0.009	0.036	0.47	0.28
Bandai Machi	4 293	22 201	<0.001	0.44	0.018	0.036	0.49	0.30
Date Shi	69 963	147 228	0.008	2.4	0.16	0.036	2.6	1.6
Fukushima Shi	296 181	228 498	0.006	3.6	0.15	0.036	3.8	2.3
Furudono Machi	6 374	21 963	0.002	0.38	0.020	0.036	0.43	0.26
Hanawa Machi	10 663	19 976	0.002	0.35	0.019	0.036	0.41	0.24
Hinoemata Mura	696	2 434	<0.001	0.04	<0.001	0.036	0.08	0.042
Hirata Mura	7 595	19 296	0.001	0.35	0.012	0.036	0.40	0.24
Inawashiro Machi	16 982	24 633	0.001	0.40	0.049	0.036	0.49	0.30
Ishikawa Machi	19 175	11 789	0.001	0.20	0.006	0.036	0.24	0.14
Iwaki Shi	354 297	26 385	0.008	0.72	0.080	0.036	0.84	0.50
Izumizaki Mura	6 949	55 888	0.001	0.90	0.008	0.036	0.95	0.56
Kagamiishi Machi	13 651	56 530	0.001	0.92	0.009	0.036	1.0	0.58
Kaneyama Machi	2 871	3 161	<0.001	0.05	<0.001	0.036	0.08	0.042
Kawamata Machi	16 847	93 168	0.004	1.5	0.073	0.036	1.6	0.99
Kitakata Shi	55 824	20 684	<0.001	0.37	0.006	0.036	0.41	0.25
Kitashiobara Mura	3 791	49 371	0.001	0.82	0.026	0.036	0.89	0.54
Koori Machi	14 708	208 246	0.010	3.2	0.23	0.036	3.5	2.2
Koriyama Shi	341 781	162 070	0.001	2.5	0.025	0.036	2.6	1.6
Kunimi Machi	9 952	88 661	0.006	1.4	0.12	0.036	1.6	0.99
Miharu Machi	17 942	83 919	0.001	1.4	0.011	0.036	1.4	0.84
Minamiaizu Machi	19 896	5 101	<0.001	0.09	0.001	0.036	0.12	0.066
Minamisoma Shi	40 941	109 472	0.037	1.7	0.44	0.036	2.3	1.3
Mishima Machi	2 213	13 560	<0.001	0.23	0.001	0.036	0.26	0.15
Motomiya Shi	30 771	128 097	0.001	2.0	0.037	0.036	2.1	1.3
Nakajima Mura	4 865	25 332	0.001	0.44	0.006	0.036	0.48	0.29
Nihonmatsu Shi	63 751	197 153	0.003	3.0	0.10	0.036	3.1	1.9
Nishiaizu Machi	8 237	6 193	<0.001	0.10	0.002	0.036	0.14	0.076
Nishigo Mura	18 615	96 014	0.001	1.5	0.012	0.036	1.5	0.92
Ono Machi	11 983	21 434	0.002	0.37	0.017	0.036	0.42	0.25

Municipality	Population in 2010 (persons)	Average deposition density of $^{137}\text{Cs}$ on soil ( $\text{Bq}/\text{m}^2$ )	Estimated effective doses to adults ( $\text{mSv}$ )						
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total		
			Mean	Mean	Mean	Mean	Mean	5%ile	95%ile
Otama Mura	8 130	162 855	0.002	2.5	0.073	0.036	2.6	1.7	4.4
Samegawa Mura	4 259	21 146	0.002	0.38	0.016	0.036	0.44	0.26	0.76
Shimogo Machi	7 010	3 376	<0.001	0.19	0.001	0.036	0.23	0.13	0.43
Shinchi Machi	9 039	55 233	0.014	0.92	0.15	0.036	1.1	0.67	2.1
Shirakawa Shi	66 544	71 676	0.001	1.2	0.014	0.036	1.3	0.78	2.2
Showa Mura	1 632	12 200	<0.001	0.21	0.002	0.036	0.25	0.14	0.45
Soma Shi	38 187	54 612	0.019	0.89	0.21	0.036	1.2	0.68	2.2
Sukagawa Shi	78 819	73 261	0.001	1.2	0.011	0.036	1.2	0.74	2.1
Tadami Machi	5 277	5 311	<0.001	0.12	0.001	0.036	0.16	0.084	0.27
Tamakawa Mura	7 295	15 751	0.001	0.27	0.006	0.036	0.31	0.18	0.56
Tamura Shi	40,231	34,945	0.002	0.59	0.021	0.036	0.65	0.38	1.1
Tanagura Machi	15 702	45 108	0.003	0.72	0.028	0.036	0.79	0.48	1.4
Ten-ei Mura	6 589	115 367	0.001	1.8	0.017	0.036	1.8	1.11	3.1
Yabuki Machi	18 688	33 530	<0.001	0.59	0.005	0.036	0.63	0.37	1.1
Yamatsuri Machi	6 821	6 324	<0.001	0.27	0.004	0.036	0.32	0.18	0.57
Yanaizu Machi	4 263	12 995	<0.001	0.22	0.003	0.036	0.26	0.15	0.49
Yugawa Mura	3 455	37 400	<0.001	0.63	0.007	0.036	0.67	0.40	1.2

**Table A-13.2. Estimated effective doses to 10-year-old children in the first year after the accident for Fukushima Prefecture (excluding evacuated areas)**

Municipality	Population in 2010 (persons)	Average deposition density of $^{137}\text{Cs}$ on soil (Bq/m <sup>2</sup> )	Estimated effective doses to 10-year-old children (mSv)						
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total		
			Mean	Mean	Mean	Mean	Mean	5%ile	95%ile
<b>Fukushima Prefecture</b>									
Aizubange Machi	17 918	39 454	<0.001	0.77	0.011	0.051	0.84	0.51	1.5
Aizumisato Machi	24 631	14 523	<0.001	0.30	0.010	0.051	0.36	0.21	0.68
Aizuwakamatsu Shi	131 928	24 878	<0.001	0.60	0.011	0.051	0.66	0.40	1.1
Asakawa Machi	7 402	23 748	0.001	0.50	0.014	0.051	0.56	0.32	1.03
Bandai Machi	4 293	22 201	<0.001	0.52	0.028	0.051	0.60	0.37	1.02
Date Shi	69 963	147 228	0.008	2.8	0.24	0.051	3.1	1.9	5.4
Fukushima Shi	296 181	228 498	0.007	4.2	0.23	0.051	4.5	2.8	7.6
Furudono Machi	6 374	21 963	0.002	0.45	0.030	0.051	0.53	0.31	0.89
Hanawa Machi	10 663	19 976	0.002	0.41	0.030	0.051	0.50	0.30	0.92
Hinoemata Mura	696	2 434	<0.001	0.05	<0.001	0.051	0.10	0.053	0.21
Hirata Mura	7 595	19 296	0.001	0.42	0.018	0.051	0.49	0.28	0.97
Inawashiro Machi	16 982	24 633	0.001	0.48	0.075	0.051	0.61	0.36	1.11
Ishikawa Machi	19 175	11 789	0.001	0.24	0.009	0.051	0.30	0.17	0.55
Iwaki Shi	354 297	26 385	0.009	0.86	0.12	0.051	1.0	0.61	1.9
Izumizaki Mura	6 949	55 888	0.001	1.1	0.012	0.051	1.1	0.69	2.0
Kagamiishi Machi	13 651	56 530	0.001	1.1	0.014	0.051	1.2	0.69	1.9
Kaneyama Machi	2 871	3 161	<0.001	0.06	0.001	0.051	0.11	0.059	0.25
Kawamata Machi	16 847	93 168	0.004	1.8	0.11	0.051	2.0	1.2	3.4
Kitakata Shi	55 824	20 684	<0.001	0.44	0.010	0.051	0.50	0.30	0.90
Kitashiobara Mura	3 791	49 371	0.001	0.98	0.041	0.051	1.1	0.63	1.8
Koori Machi	14 708	208 246	0.010	3.8	0.35	0.051	4.2	2.6	7.0
Koriyama Shi	341 781	162 070	0.001	3.0	0.038	0.051	3.1	1.9	5.1
Kunimi Machi	9 952	88 661	0.006	1.7	0.19	0.051	1.9	1.2	3.3
Miharu Machi	17 942	83 919	0.001	1.6	0.017	0.051	1.7	1.01	2.8
Minamiaizu Machi	19 896	5 101	<0.001	0.10	0.001	0.051	0.16	0.080	0.31
Minamisoma Shi	40 941	109 472	0.040	2.1	0.67	0.051	2.8	1.6	6.0
Mishima Machi	2 213	13 560	<0.001	0.27	0.002	0.051	0.32	0.17	0.59
Motomiya Shi	30 771	128 097	0.001	2.4	0.057	0.051	2.5	1.5	4.2
Nakajima Mura	4 865	25 332	0.001	0.53	0.009	0.051	0.59	0.36	1.10
Nihonmatsu Shi	63 751	197 153	0.003	3.5	0.15	0.051	3.7	2.4	6.2
Nishiaizu Machi	8 237	6 193	<0.001	0.12	0.004	0.051	0.17	0.092	0.38

Municipality	Population in 2010 (persons)	Average deposition density of $^{137}\text{Cs}$ on soil (Bq/m <sup>2</sup> )	Estimated effective doses to 10-year-old children (mSv)						
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total		
			Mean	Mean	Mean	Mean	Mean	5%ile	95%ile
Nishigo Mura	18 615	96 014	0.001	1.8	0.019	0.051	1.8	1.1	3.0
Ono Machi	11 983	21 434	0.002	0.44	0.026	0.051	0.51	0.31	0.95
Otama Mura	8 130	162 855	0.002	3.0	0.11	0.051	3.2	1.9	5.5
Samegawa Mura	4 259	21 146	0.002	0.46	0.024	0.051	0.53	0.32	0.90
Shimogo Machi	7 010	3 376	<0.001	0.23	0.002	0.051	0.28	0.16	0.55
Shinchi Machi	9 039	55 233	0.015	1.1	0.23	0.051	1.4	0.83	2.7
Shirakawa Shi	66 544	71 676	0.001	1.5	0.021	0.051	1.6	0.94	2.6
Showa Mura	1 632	12 200	<0.001	0.25	0.003	0.051	0.30	0.17	0.56
Soma Shi	38 187	54 612	0.021	1.1	0.31	0.051	1.4	0.83	3.0
Sukagawa Shi	78 819	73 261	0.001	1.4	0.017	0.051	1.5	0.90	2.5
Tadami Machi	5 277	5 311	<0.001	0.15	0.001	0.051	0.20	0.10	0.34
Tamakawa Mura	7 295	15 751	0.001	0.32	0.010	0.051	0.38	0.22	0.68
Tamura Shi	40,231	34,945	0.002	0.70	0.032	0.051	0.78	0.46	1.4
Tanagura Machi	15 702	45 108	0.003	0.86	0.042	0.051	1.0	0.58	1.7
Ten-ei Mura	6 589	115 367	0.001	2.1	0.026	0.051	2.2	1.3	3.7
Yabuki Machi	18 688	33 530	0.001	0.70	0.008	0.051	0.76	0.44	1.3
Yamatsuri Machi	6 821	6 324	<0.001	0.33	0.007	0.051	0.39	0.23	0.71
Yanaizu Machi	4 263	12 995	<0.001	0.26	0.005	0.051	0.31	0.18	0.58
Yugawa Mura	3 455	37 400	<0.001	0.74	0.011	0.051	0.81	0.49	1.4

**Table A-13.3. Estimated effective doses to 1-year-old infants in the first year after the accident for Fukushima Prefecture (excluding evacuated areas)**

Municipality	Population in 2010 (persons)	Average deposition density of $^{137}\text{Cs}$ on soil (Bq/m <sup>2</sup> )	Estimated effective doses to 1-year-old infants (mSv)						
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total		
			Mean	Mean	Mean	Mean	Mean	5%ile	95%ile
<b>Fukushima Prefecture</b>									
Aizubange Machi	17 918	39 454	<0.001	0.91	0.013	0.055	0.98	0.61	1.8
Aizumisato Machi	24 631	14 523	<0.001	0.36	0.011	0.055	0.42	0.25	0.78
Aizuwakamatsu Shi	131 928	24 878	<0.001	0.71	0.013	0.055	0.78	0.46	1.3
Asakawa Machi	7 402	23 748	0.001	0.59	0.016	0.055	0.66	0.39	1.2
Bandai Machi	4 293	22 201	<0.001	0.61	0.031	0.055	0.70	0.43	1.2
Date Shi	69 963	147 228	0.009	3.3	0.28	0.055	3.7	2.3	6.2
Fukushima Shi	296 181	228 498	0.007	5.0	0.26	0.055	5.3	3.3	8.9
Furudono Machi	6 374	21 963	0.003	0.53	0.034	0.055	0.62	0.37	1.1
Hanawa Machi	10 663	19 976	0.002	0.49	0.034	0.055	0.58	0.36	1.03
Hinoemata Mura	696	2 434	<0.001	0.06	0.001	0.055	0.12	0.060	0.23
Hirata Mura	7 595	19 296	0.002	0.50	0.020	0.055	0.57	0.34	1.15
Inawashiro Machi	16 982	24 633	0.001	0.56	0.084	0.055	0.70	0.43	1.3
Ishikawa Machi	19 175	11 789	0.001	0.28	0.010	0.055	0.34	0.20	0.62
Iwaki Shi	354 297	26 385	0.010	1.0	0.13	0.055	1.2	0.72	2.2
Izumizaki Mura	6 949	55 888	0.001	1.3	0.013	0.055	1.3	0.79	2.3
Kagamiishi Machi	13 651	56 530	0.001	1.3	0.015	0.055	1.4	0.80	2.2
Kaneyama Machi	2 871	3 161	<0.001	0.07	0.001	0.055	0.12	0.069	0.30
Kawamata Machi	16 847	93 168	0.005	2.1	0.13	0.055	2.3	1.4	4.1
Kitakata Shi	55 824	20 684	<0.001	0.52	0.011	0.055	0.59	0.35	1.03
Kitashiobara Mura	3 791	49 371	0.001	1.2	0.045	0.055	1.3	0.74	2.2
Koori Machi	14 708	208 246	0.011	4.5	0.40	0.055	5.0	3.0	8.2
Koriyama Shi	341 781	162 070	0.002	3.5	0.04	0.055	3.6	2.2	6.0
Kunimi Machi	9 952	88 661	0.007	2.0	0.22	0.055	2.3	1.5	3.9
Miharu Machi	17 942	83 919	0.001	1.9	0.020	0.055	2.0	1.2	3.2
Minamiaizu Machi	19 896	5 101	<0.001	0.12	0.001	0.055	0.18	0.092	0.34
Minamisoma Shi	40 941	109 472	0.043	2.4	0.76	0.055	3.3	1.9	6.9
Mishima Machi	2 213	13 560	<0.001	0.32	0.002	0.055	0.38	0.22	0.68
Motomiya Shi	30 771	128 097	0.001	2.8	0.064	0.055	2.9	1.7	5.0
Nakajima Mura	4 865	25 332	0.001	0.62	0.011	0.055	0.69	0.44	1.2
Nihonmatsu Shi	63 751	197 153	0.004	4.2	0.17	0.055	4.4	2.8	7.3
Nishiaizu Machi	8 237	6 193	<0.001	0.14	0.004	0.055	0.20	0.10	0.40

Municipality	Population in 2010 (persons)	Average deposition density of $^{137}\text{Cs}$ on soil (Bq/m <sup>2</sup> )	Estimated effective doses to 1-year-old infants (mSv)						
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total		
			Mean	Mean	Mean	Mean	Mean	5%ile	95%ile
Nishigo Mura	18 615	96 014	0.001	2.1	0.021	0.055	2.2	1.3	3.5
Ono Machi	11 983	21 434	0.002	0.51	0.030	0.055	0.60	0.36	1.04
Otama Mura	8 130	162 855	0.002	3.5	0.13	0.055	3.7	2.3	6.4
Samegawa Mura	4 259	21 146	0.002	0.54	0.027	0.055	0.62	0.39	1.0
Shimogo Machi	7 010	3 376	<0.001	0.27	0.002	0.055	0.33	0.18	0.59
Shinchi Machi	9 039	55 233	0.016	1.3	0.26	0.055	1.6	0.97	3.1
Shirakawa Shi	66 544	71 676	0.001	1.7	0.023	0.055	1.8	1.1	3.0
Showa Mura	1 632	12 200	<0.001	0.29	0.003	0.055	0.35	0.20	0.57
Soma Shi	38 187	54 612	0.023	1.2	0.36	0.055	1.7	0.97	3.4
Sukagawa Shi	78 819	73 261	0.001	1.7	0.020	0.055	1.7	1.06	3.0
Tadami Machi	5 277	5 311	<0.001	0.17	0.001	0.055	0.23	0.12	0.39
Tamakawa Mura	7 295	15 751	0.001	0.37	0.011	0.055	0.44	0.26	0.73
Tamura Shi	40,231	34,945	0.002	0.70	0.032	0.055	0.92	0.54	1.6
Tanagura Machi	15 702	45 108	0.003	1.0	0.048	0.055	1.1	0.70	1.9
Ten-ei Mura	6 589	115 367	0.002	2.5	0.030	0.055	2.6	1.6	4.2
Yabuki Machi	18 688	33 530	0.001	0.83	0.009	0.055	0.89	0.53	1.5
Yamatsuri Machi	6 821	6 324	<0.001	0.39	0.008	0.055	0.45	0.27	0.86
Yanaizu Machi	4 263	12 995	<0.001	0.31	0.006	0.055	0.37	0.22	0.58
Yugawa Mura	3 455	37 400	<0.001	0.88	0.013	0.055	0.94	0.62	1.5

**Table A-13.4. Estimated effective doses to adults in the first year after the accident for prefectures neighbouring Fukushima Prefecture**

Municipality	Population in 2010 (persons)	Average deposition density of $^{137}\text{Cs}$ on soil (Bq/m <sup>2</sup> )	Estimated effective doses to adults (mSv)						
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total		
			Mean	Mean	Mean	Mean	Mean	5%ile	95%ile
<b>Ibaraki Prefecture</b>									
Daigo Machi	22 077	9 233	0.001	0.16	0.007	0.009	0.18	0.09	0.29
Hitachi Shi	14 753	27 366	0.007	0.47	0.068	0.009	0.55	0.27	1.0
Hitaichiomiya Shi	2 512	8 220	<0.001	0.14	0.006	0.009	0.16	0.081	0.26
Hitachiota Shi	5 188	6 358	<0.001	0.13	0.004	0.009	0.15	0.074	0.24
Kitaibaraki Shi	49 847	16 821	0.004	0.50	0.034	0.009	0.55	0.27	0.92
Takahagi Shi	32 207	26 854	0.007	0.73	0.070	0.009	0.81	0.40	1.4
<b>Miyagi Ken</b>									
Higashimatsushima Shi	43 611	7 050	0.007	0.13	0.063	0.009	0.21	0.10	0.45
Iwanuma Shi	42 842	16 081	0.004	0.28	0.049	0.009	0.34	0.17	0.60
Kakuda Shi	33 783	37 016	0.003	0.62	0.045	0.009	0.68	0.34	1.1
Kawasaki Machi	10 517	9 496	0.001	0.17	0.018	0.009	0.20	0.10	0.36
Marumori Machi	16 632	49 610	0.003	0.85	0.048	0.009	0.91	0.46	1.5
Murata Machi	12 390	14 629	0.001	0.26	0.017	0.009	0.28	0.14	0.47
Natori Shi	75 306	14 709	0.004	0.35	0.053	0.009	0.42	0.21	0.74
Ogawara Machi	23 398	33 604	0.001	0.57	0.024	0.009	0.60	0.30	1.0
Rifu Cho	32 611	14 720	0.007	0.25	0.089	0.009	0.35	0.18	0.71
Sendai Shi	1 014 208	10 674	0.001	0.18	0.015	0.009	0.21	0.10	0.34
Shibata Machi	39 490	29 017	0.002	0.48	0.024	0.009	0.51	0.25	0.85
Shichigahama Machi	22 259	7 680	0.003	0.13	0.038	0.009	0.18	0.10	0.37
Shichikashuku Machi	1 871	9 264	0.001	0.17	0.010	0.009	0.19	0.10	0.32
Shiogama Shi	56 266	13 640	0.006	0.24	0.073	0.009	0.33	0.17	0.66
Shiroishi Shi	39 696	31 054	0.001	0.52	0.017	0.009	0.54	0.27	0.90
Tagajo Shi	64 922	15 380	0.006	0.27	0.075	0.009	0.36	0.19	0.76
Watari Cho	35 776	26 777	0.007	0.45	0.081	0.009	0.55	0.25	1.2
Yamamoto Cho	17 248	42 626	0.012	0.68	0.130	0.009	0.83	0.39	1.5
Zao Machi	13 073	18 296	0.002	0.32	0.042	0.009	0.37	0.18	0.65
<b>Tochigi Ken</b>									
Nakagawa Machi	19 903	18 800	0.002	0.32	0.028	0.009	0.36	0.18	0.60
Nasu Machi	26 691	51 525	0.001	0.85	0.007	0.009	0.87	0.44	1.4
Nasushiobara Shi	118 463	52 368	0.001	0.90	0.012	0.009	0.92	0.46	1.5
Nikko Shi	85 261	7 203	<0.001	0.28	0.001	0.009	0.29	0.14	0.47
Otawara Shi	75 385	23 434	0.002	0.45	0.017	0.009	0.48	0.24	0.79

Municipality	Population in 2010 (persons)	Average deposition density of $^{137}\text{Cs}$ on soil (Bq/m <sup>2</sup> )	Estimated effective doses to adults (mSv)						
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total		
			Mean	Mean	Mean	Mean	Mean	5%ile	95%ile
<b>Yamagata Ken</b>									
Kaminoyama Shi	36 118	5 580	<0.001	0.10	0.006	0.009	0.11	0.055	0.18
Nan-yo Shi	35 110	4 540	<0.001	0.08	0.008	0.009	0.10	0.050	0.17
Takahata Machi	26 358	4 240	0.001	0.08	0.034	0.009	0.12	0.059	0.24
Yamagata Shi	257 936	5 880	<0.001	0.11	0.004	0.009	0.12	0.060	0.19
Yonezawa Shi	92 876	3 434	0.001	0.09	0.036	0.009	0.14	0.070	0.28

**Table A-13.5. Estimated effective doses to 10-year-old children in the first year after the accident for prefectures neighbouring Fukushima Prefecture**

Municipality	Population in 2010 (persons)	Average deposition density of $^{137}\text{Cs}$ on soil (Bq/m <sup>2</sup> )	Estimated effective doses to 10-year-old children (mSv)						
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total		
			Mean	Mean	Mean	Mean	Mean	5%ile	95%ile
<b>Ibaraki Prefecture</b>									
Daigo Machi	22 077	9 233	0.001	0.19	0.011	0.013	0.22	0.11	0.36
Hitachi Shi	14 753	27 366	0.008	0.56	0.099	0.013	0.68	0.32	1.2
Hitaichiomiya Shi	2 512	8 220	0.001	0.17	0.010	0.013	0.20	0.10	0.32
Hitachiota Shi	5 188	6 358	<0.001	0.16	0.007	0.013	0.18	0.09	0.29
Kitaibaraki Shi	49 847	16 821	0.004	0.60	0.049	0.013	0.67	0.32	1.1
Takahagi Shi	32 207	26 854	0.008	0.87	0.102	0.013	0.99	0.48	1.7
<b>Miyagi Ken</b>									
Higashimatsushima Shi	43 611	7 050	0.007	0.15	0.095	0.013	0.27	0.13	0.63
Iwanuma Shi	42 842	16 081	0.004	0.34	0.072	0.013	0.43	0.21	0.76
Kakuda Shi	33 783	37 016	0.004	0.73	0.069	0.013	0.82	0.40	1.4
Kawasaki Machi	10 517	9 496	0.001	0.21	0.027	0.013	0.25	0.12	0.46
Marumori Machi	16 632	49 610	0.004	1.0	0.073	0.013	1.1	0.54	1.8
Murata Machi	12 390	14 629	0.001	0.30	0.026	0.013	0.34	0.17	0.57
Natori Shi	75 306	14 709	0.004	0.42	0.078	0.013	0.52	0.25	0.94
Ogawara Machi	23 398	33 604	0.002	0.67	0.036	0.013	0.72	0.35	1.2
Rifu Cho	32 611	14 720	0.007	0.29	0.14	0.013	0.45	0.22	0.97
Sendai Shi	1 014 208	10 674	0.001	0.22	0.022	0.013	0.25	0.12	0.42
Shibata Machi	39 490	29 017	0.002	0.57	0.036	0.013	0.62	0.30	1.0
Shichigahama Machi	22 259	7 680	0.004	0.16	0.057	0.013	0.23	0.12	0.50
Shichikashuku Machi	1 871	9 264	0.001	0.21	0.015	0.013	0.24	0.11	0.39
Shiogama Shi	56 266	13 640	0.006	0.28	0.11	0.013	0.41	0.21	0.90
Shiroishi Shi	39 696	31 054	0.001	0.61	0.026	0.013	0.65	0.31	1.1
Tagajo Shi	64 922	15 380	0.006	0.32	0.12	0.013	0.45	0.24	1.0
Watari Cho	35 776	26 777	0.007	0.53	0.12	0.013	0.67	0.29	1.5
Yamamoto Cho	17 248	42 626	0.013	0.80	0.19	0.013	1.02	0.47	2.0
Zao Machi	13 073	18 296	0.002	0.38	0.065	0.013	0.46	0.22	0.84
<b>Tochigi Ken</b>									
Nakagawa Machi	19 903	18 800	0.002	0.38	0.044	0.013	0.44	0.22	0.73
Nasu Machi	26 691	51 525	0.001	1.0	0.010	0.013	1.0	0.51	1.7
Nasushiobara Shi	118 463	52 368	0.001	1.1	0.018	0.013	1.1	0.54	1.8
Nikko Shi	85 261	7 203	<0.001	0.33	0.001	0.013	0.35	0.17	0.57
Otawara Shi	75 385	23 434	0.002	0.54	0.026	0.013	0.58	0.28	0.95

Municipality	Population in 2010 (persons)	Average deposition density of $^{137}\text{Cs}$ on soil (Bq/m <sup>2</sup> )	Estimated effective doses to 10-year-old children (mSv)						
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total		
			Mean	Mean	Mean	Mean	Mean	5%ile	95%ile
<b>Yamagata Ken</b>									
Kaminoyama Shi	36 118	5 580	<0.001	0.11	0.009	0.013	0.14	0.067	0.22
Nan-yo Shi	35 110	4 540	<0.001	0.10	0.013	0.013	0.13	0.060	0.22
Takahata Machi	26 358	4 240	0.001	0.09	0.052	0.013	0.16	0.075	0.34
Yamagata Shi	257 936	5 880	<0.001	0.13	0.006	0.013	0.15	0.072	0.24
Yonezawa Shi	92 876	3 434	0.001	0.11	0.056	0.013	0.18	0.09	0.40

**Table A-13.6. Estimated effective doses to 1-year-old infants in the first year after the accident for prefectures neighbouring Fukushima Prefecture**

Municipality	Population in 2010 (persons)	Average deposition density of $^{137}\text{Cs}$ on soil (Bq/m <sup>2</sup> )	Estimated effective doses to 1-year-old infants (mSv)						
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total		
			Mean	Mean	Mean	Mean	Mean	5%ile	95%ile
<b>Ibaraki Prefecture</b>									
Daigo Machi	22 077	9 233	0.001	0.23	0.013	0.015	0.26	0.13	0.42
Hitachi Shi	14 753	27 366	0.008	0.66	0.11	0.015	0.79	0.38	1.4
Hitaichiomiya Shi	2 512	8 220	0.001	0.20	0.011	0.015	0.23	0.11	0.37
Hitachiota Shi	5 188	6 358	0.001	0.19	0.008	0.015	0.21	0.10	0.34
Kitaibaraki Shi	49 847	16 821	0.004	0.71	0.055	0.015	0.78	0.38	1.3
Takahagi Shi	32 207	26 854	0.008	1.0	0.11	0.015	1.2	0.56	2.0
<b>Miyagi Ken</b>									
Higashimatsushima Shi	43 611	7 050	0.008	0.18	0.11	0.015	0.31	0.15	0.73
Iwanuma Shi	42 842	16 081	0.004	0.40	0.081	0.015	0.50	0.24	0.88
Kakuda Shi	33 783	37 016	0.004	0.86	0.079	0.015	0.96	0.47	1.6
Kawasaki Machi	10 517	9 496	0.001	0.24	0.032	0.015	0.29	0.14	0.54
Marumori Machi	16 632	49 610	0.004	1.2	0.084	0.015	1.3	0.63	2.2
Murata Machi	12 390	14 629	0.001	0.36	0.029	0.015	0.40	0.19	0.67
Natori Shi	75 306	14 709	0.005	0.50	0.088	0.015	0.61	0.29	1.1
Ogawara Machi	23 398	33 604	0.002	0.79	0.041	0.015	0.85	0.42	1.4
Rifu Cho	32 611	14 720	0.008	0.35	0.16	0.015	0.53	0.26	1.1
Sendai Shi	1 014 208	10 674	0.001	0.26	0.026	0.015	0.30	0.14	0.50
Shibata Machi	39 490	29 017	0.002	0.67	0.041	0.015	0.73	0.35	1.2
Shichigahama Machi	22 259	7 680	0.004	0.19	0.066	0.015	0.27	0.14	0.58
Shichikashuku Machi	1 871	9 264	0.001	0.24	0.017	0.015	0.28	0.13	0.46
Shiogama Shi	56 266	13 640	0.007	0.33	0.13	0.015	0.48	0.25	1.0
Shiroishi Shi	39 696	31 054	0.001	0.72	0.030	0.015	0.77	0.37	1.3
Tagajo Shi	64 922	15 380	0.007	0.37	0.13	0.015	0.53	0.28	1.2
Watari Cho	35 776	26 777	0.008	0.63	0.14	0.015	0.79	0.34	1.8
Yamamoto Cho	17 248	42 626	0.014	0.94	0.22	0.015	1.2	0.55	2.3
Zao Machi	13 073	18 296	0.002	0.44	0.075	0.015	0.54	0.25	0.98
<b>Tochigi Ken</b>									
Nakagawa Machi	19 903	18 800	0.003	0.45	0.050	0.015	0.51	0.25	0.86
Nasu Machi	26 691	51 525	0.001	1.2	0.012	0.015	1.2	0.60	2.0
Nasushiobara Shi	118 463	52 368	0.001	1.3	0.020	0.015	1.3	0.64	2.2
Nikko Shi	85 261	7 203	<0.001	0.39	0.001	0.015	0.41	0.20	0.67
Otawara Shi	75 385	23 434	0.002	0.63	0.030	0.015	0.68	0.33	1.1

Municipality	Population in 2010 (persons)	Average deposition density of $^{137}\text{Cs}$ on soil (Bq/m <sup>2</sup> )	Estimated effective doses to 1-year-old infants (mSv)						
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total		
			Mean	Mean	Mean	Mean	Mean	5%ile	
<b>Yamagata Ken</b>									
Kaminoyama Shi	36 118	5 580	<0.001	0.13	0.010	0.015	0.16	0.078	0.26
Nan-yo Shi	35 110	4 540	<0.001	0.12	0.015	0.015	0.15	0.070	0.25
Takahata Machi	26 358	4 240	0.001	0.11	0.058	0.015	0.18	0.09	0.39
Yamagata Shi	257 936	5 880	<0.001	0.15	0.007	0.015	0.17	0.08	0.28
Yonezawa Shi	92 876	3 434	0.001	0.13	0.062	0.015	0.21	0.10	0.45

**Table A-13.7. Estimated effective doses to adults in the first year after the accident for prefectures in Japan distant from Fukushima Prefecture**

Prefecture	Population in 2010 (persons)	Average soil deposition of $^{137}\text{Cs}$ (Bq/m <sup>2</sup> )	Estimated effective doses to adults (mSv)				
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total
			Mean	Mean	Mean	Mean	Mean
<b>Remainder of Japan</b>							
Aichi Prefecture	7 410 719	9	<0.001	<0.001	<0.001	0.004	0.004
Akita Prefecture	1 085 997	175	<0.001	0.003	<0.001	0.004	0.008
Aomori Prefecture	1 373 339	67	<0.001	0.001	<0.001	0.004	0.006
Chiba Prefecture	6 216 289	20 931	<0.001	0.35	0.005	0.004	0.36
Ehime Prefecture	1 431 493	7	<0.001	<0.001	<0.001	0.004	0.004
Fukui Prefecture	806 314	31	<0.001	0.001	<0.001	0.004	0.005
Fukuoka Prefecture	5 071 968	1	<0.001	<0.001	<0.001	0.004	0.004
Gifu Prefecture	2 080 773	16	<0.001	<0.001	<0.001	0.004	0.005
Gunma Prefecture	2 008 068	13 639	<0.001	0.23	0.003	0.004	0.24
Hiroshima Prefecture	2 860 750	4	<0.001	<0.001	<0.001	0.004	0.004
Hokkaido Prefecture	5 506 419	9	<0.001	<0.001	<0.001	0.004	0.004
Hyogo Prefecture	5 588 133	8	<0.001	<0.001	<0.001	0.004	0.004
Ishikawa Prefecture	1 169 788	13	<0.001	<0.001	<0.001	0.004	0.005
Iwate Prefecture	1 330 147	11 880	<0.001	0.20	0.003	0.004	0.21
Kagawa Prefecture	995 842	6	<0.001	<0.001	<0.001	0.004	0.004
Kagoshima Prefecture	1 706 242	1	<0.001	<0.001	<0.001	0.004	0.004
Kanagawa Prefecture	9 048 331	3 857	<0.001	0.069	0.001	0.004	0.074
Kochi Prefecture	764 456	36	<0.001	0.001	<0.001	0.004	0.005
Kumamoto Prefecture	1 817 426	0	<0.001	<0.001	<0.001	0.004	0.004
Kyoto Prefecture	2 636 092	7	<0.001	<0.001	<0.001	0.004	0.004
Mie Prefecture	1 854 724	27	<0.001	0.001	<0.001	0.004	0.005
Miyazaki Prefecture	1 135 233	6	<0.001	<0.001	<0.001	0.004	0.004
Nagano Prefecture	2 152 449	1 251	<0.001	0.023	<0.001	0.004	0.028
Nagasaki Prefecture	1 426 779	2	<0.001	<0.001	<0.001	0.004	0.004
Nara Prefecture	1 400 728	7	<0.001	<0.001	<0.001	0.004	0.004
Niigata Prefecture	2 374 450	49	<0.001	0.001	<0.001	0.004	0.005
Oita Prefecture	1 196 529	1	<0.001	<0.001	<0.001	0.004	0.004
Okayama Prefecture	1 945 276	4	<0.001	<0.001	<0.001	0.004	0.004
Okinawa Prefecture	1 392 818	4	<0.001	<0.001	<0.001	0.004	0.004
Osaka Prefecture	8 865 245	9	<0.001	<0.001	<0.001	0.004	0.004
Saga Prefecture	849 788	1	<0.001	<0.001	<0.001	0.004	0.004
Saitama Prefecture	7 194 556	6 284	<0.001	0.11	0.001	0.004	0.12
Shiga Prefecture	1 410 777	7	<0.001	<0.001	<0.001	0.004	0.004
Shimane Prefecture	717 397	6	<0.001	<0.001	<0.001	0.004	0.004
Shizuoka Prefecture	3 765 007	643	<0.001	0.012	<0.001	0.004	0.017

Prefecture	Population in 2010 (persons)	Average soil deposition of $^{137}\text{Cs}$ (Bq/m <sup>2</sup> )	Estimated effective doses to adults (mSv)				
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total
			Mean	Mean	Mean	Mean	Mean
Tokushima Prefecture	785 491	8	<0.001	<0.001	<0.001	0.004	0.004
Tokyo	13 159 388	8 499	<0.001	0.15	0.002	0.004	0.15
Tottori Prefecture	588 667	11	<0.001	<0.001	<0.001	0.004	0.005
Toyama Prefecture	1 093 247	16	<0.001	<0.001	<0.001	0.004	0.005
Wakayama Prefecture	1 002 198	10	<0.001	<0.001	<0.001	0.004	0.004
Yamaguchi Prefecture	1 451 338	3	<0.001	<0.001	<0.001	0.004	0.004
Yamanashi Prefecture	863 075	208	<0.001	0.004	<0.001	0.004	0.008

**Table A-13.8. Estimated effective doses to 10-year-old children in the first year after the accident for prefectures in Japan distant from Fukushima Prefecture**

Prefecture	Population in 2010 (persons)	Average soil deposition of $^{137}\text{Cs}$ (Bq/m <sup>2</sup> )	Estimated effective doses to 10-year-old children (mSv)				
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total
			Mean	Mean	Mean	Mean	Mean
<b>Remainder of Japan</b>							
Aichi Prefecture	7 410 719	9	<0.001	<0.001	<0.001	0.005	0.005
Akita Prefecture	1 085 997	175	<0.001	0.004	<0.001	0.005	0.009
Aomori Prefecture	1 373 339	67	<0.001	0.002	<0.001	0.005	0.007
Chiba Prefecture	6 216 289	20 931	<0.001	0.42	0.008	0.005	0.43
Ehime Prefecture	1 431 493	7	<0.001	<0.001	<0.001	0.005	0.005
Fukui Prefecture	806 314	31	<0.001	0.001	<0.001	0.005	0.006
Fukuoka Prefecture	5 071 968	1	<0.001	<0.001	<0.001	0.005	0.005
Gifu Prefecture	2 080 773	16	<0.001	<0.001	<0.001	0.005	0.005
Gunma Prefecture	2 008 068	13 639	<0.001	0.28	0.005	0.005	0.29
Hiroshima Prefecture	2 860 750	4	<0.001	<0.001	<0.001	0.005	0.005
Hokkaido Prefecture	5 506 419	9	<0.001	<0.001	<0.001	0.005	0.005
Hyogo Prefecture	5 588 133	8	<0.001	<0.001	<0.001	0.005	0.005
Ishikawa Prefecture	1 169 788	13	<0.001	<0.001	<0.001	0.005	0.005
Iwate Prefecture	1 330 147	11 880	<0.001	0.24	0.005	0.005	0.25
Kagawa Prefecture	995 842	6	<0.001	<0.001	<0.001	0.005	0.005
Kagoshima Prefecture	1 706 242	1	<0.001	<0.001	<0.001	0.005	0.005
Kanagawa Prefecture	9 048 331	3 857	<0.001	0.081	0.001	0.005	0.088
Kochi Prefecture	764 456	36	<0.001	0.001	<0.001	0.005	0.006
Kumamoto Prefecture	1 817 426	0	<0.001	<0.001	<0.001	0.005	0.005
Kyoto Prefecture	2 636 092	7	<0.001	<0.001	<0.001	0.005	0.005
Mie Prefecture	1 854 724	27	<0.001	0.001	<0.001	0.005	0.006
Miyazaki Prefecture	1 135 233	6	<0.001	<0.001	<0.001	0.005	0.005
Nagano Prefecture	2 152 449	1 251	<0.001	0.027	<0.001	0.005	0.033
Nagasaki Prefecture	1 426 779	2	<0.001	<0.001	<0.001	0.005	0.005
Nara Prefecture	1 400 728	7	<0.001	<0.001	<0.001	0.005	0.005
Niigata Prefecture	2 374 450	49	<0.001	0.001	<0.001	0.005	0.006
Oita Prefecture	1 196 529	1	<0.001	<0.001	<0.001	0.005	0.005
Okayama Prefecture	1 945 276	4	<0.001	<0.001	<0.001	0.005	0.005
Okinawa Prefecture	1 392 818	4	<0.001	<0.001	<0.001	0.005	0.005
Osaka Prefecture	8 865 245	9	<0.001	<0.001	<0.001	0.005	0.005
Saga Prefecture	849 788	1	<0.001	<0.001	<0.001	0.005	0.005
Saitama Prefecture	7 194 556	6 284	<0.001	0.13	0.002	0.005	0.14
Shiga Prefecture	1 410 777	7	<0.001	<0.001	<0.001	0.005	0.005
Shimane Prefecture	717 397	6	<0.001	<0.001	<0.001	0.005	0.005
Shizuoka Prefecture	3 765 007	643	<0.001	0.015	<0.001	0.005	0.020

Prefecture	Population in 2010 (persons)	Average soil deposition of $^{137}\text{Cs}$ (Bq/m <sup>2</sup> )	Estimated effective doses to 10-year-old children (mSv)				
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total
			Mean	Mean	Mean	Mean	Mean
Tokushima Prefecture	785 491	8	<0.001	<0.001	<0.001	0.005	0.005
Tokyo	13 159 388	8 499	<0.001	0.18	0.003	0.005	0.18
Tottori Prefecture	588 667	11	<0.001	<0.001	<0.001	0.005	0.005
Toyama Prefecture	1 093 247	16	<0.001	<0.001	<0.001	0.005	0.005
Wakayama Prefecture	1 002 198	10	<0.001	<0.001	<0.001	0.005	0.005
Yamaguchi Prefecture	1 451 338	3	<0.001	<0.001	<0.001	0.005	0.005
Yamanashi Prefecture	863 075	208	<0.001	0.005	<0.001	0.005	0.010

**Table A-13.9. Estimated effective doses to 1-year-old infants in the first year after the accident for prefectures in Japan distant from Fukushima Prefecture**

Prefecture	Population in 2010 (persons)	Average soil deposition of $^{137}\text{Cs}$ (Bq/m <sup>2</sup> )	Estimated effective doses to 1-year-old infants (mSv)				
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total
			Mean	Mean	Mean	Mean	Mean
<b>Remainder of Japan</b>							
Aichi Prefecture	7 410 719	9	<0.001	<0.001	<0.001	0.005	0.005
Akita Prefecture	1 085 997	175	<0.001	0.005	<0.001	0.005	0.010
Aomori Prefecture	1 373 339	67	<0.001	0.002	<0.001	0.005	0.007
Chiba Prefecture	6 216 289	20 931	<0.001	0.50	0.009	0.005	0.51
Ehime Prefecture	1 431 493	7	<0.001	<0.001	<0.001	0.005	0.005
Fukui Prefecture	806 314	31	<0.001	0.001	<0.001	0.005	0.005
Fukuoka Prefecture	5 071 968	1	<0.001	<0.001	<0.001	0.005	0.005
Gifu Prefecture	2 080 773	16	<0.001	0.001	<0.001	0.005	0.005
Gunma Prefecture	2 008 068	13 639	<0.001	0.33	0.006	0.005	0.34
Hiroshima Prefecture	2 860 750	4	<0.001	<0.001	<0.001	0.005	0.005
Hokkaido Prefecture	5 506 419	9	<0.001	<0.001	<0.001	0.005	0.005
Hyogo Prefecture	5 588 133	8	<0.001	<0.001	<0.001	0.005	0.005
Ishikawa Prefecture	1 169 788	13	<0.001	<0.001	<0.001	0.005	0.005
Iwate Prefecture	1 330 147	11 880	<0.001	0.29	0.005	0.005	0.30
Kagawa Prefecture	995 842	6	<0.001	<0.001	<0.001	0.005	0.005
Kagoshima Prefecture	1 706 242	1	<0.001	<0.001	<0.001	0.005	0.005
Kanagawa Prefecture	9 048 331	3 857	<0.001	0.096	0.002	0.005	0.10
Kochi Prefecture	764 456	36	<0.001	0.001	<0.001	0.005	0.006
Kumamoto Prefecture	1 817 426	0	<0.001	<0.001	<0.001	0.005	0.005
Kyoto Prefecture	2 636 092	7	<0.001	<0.001	<0.001	0.005	0.005
Mie Prefecture	1 854 724	27	<0.001	0.001	<0.001	0.005	0.005
Miyazaki Prefecture	1 135 233	6	<0.001	<0.001	<0.001	0.005	0.005
Nagano Prefecture	2 152 449	1 251	<0.001	0.032	0.001	0.005	0.038
Nagasaki Prefecture	1 426 779	2	<0.001	<0.001	<0.001	0.005	0.005
Nara Prefecture	1 400 728	7	<0.001	<0.001	<0.001	0.005	0.005
Niigata Prefecture	2 374 450	49	<0.001	0.001	<0.001	0.005	0.006
Oita Prefecture	1 196 529	1	<0.001	<0.001	<0.001	0.005	0.005
Okayama Prefecture	1 945 276	4	<0.001	<0.001	<0.001	0.005	0.005
Okinawa Prefecture	1 392 818	4	<0.001	<0.001	<0.001	0.005	0.005
Osaka Prefecture	8 865 245	9	<0.001	<0.001	<0.001	0.005	0.005
Saga Prefecture	849 788	1	<0.001	<0.001	<0.001	0.005	0.005
Saitama Prefecture	7 194 556	6 284	<0.001	0.15	0.003	0.005	0.16
Shiga Prefecture	1 410 777	7	<0.001	<0.001	<0.001	0.005	0.005
Shimane Prefecture	717 397	6	<0.001	<0.001	<0.001	0.005	0.005
Shizuoka Prefecture	3 765 007	643	<0.001	0.017	<0.001	0.005	0.022

Prefecture	Population in 2010 (persons)	Average soil deposition of $^{137}\text{Cs}$ (Bq/m <sup>2</sup> )	Estimated effective doses to 1-year-old infants (mSv)				
			External (plume)	External (ground)	Inhalation (plume)	Ingestion	Total
			Mean	Mean	Mean	Mean	Mean
Tokushima Prefecture	785 491	8	<0.001	<0.001	<0.001	0.005	0.005
Tokyo	13 159 388	8 499	<0.001	0.21	0.004	0.005	0.21
Tottori Prefecture	588 667	11	<0.001	<0.001	<0.001	0.005	0.005
Toyama Prefecture	1 093 247	16	<0.001	0.001	<0.001	0.005	0.005
Wakayama Prefecture	1 002 198	10	<0.001	<0.001	<0.001	0.005	0.005
Yamaguchi Prefecture	1 451 338	3	<0.001	<0.001	<0.001	0.005	0.005
Yamanashi Prefecture	863 075	208	<0.001	0.006	<0.001	0.005	0.010

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