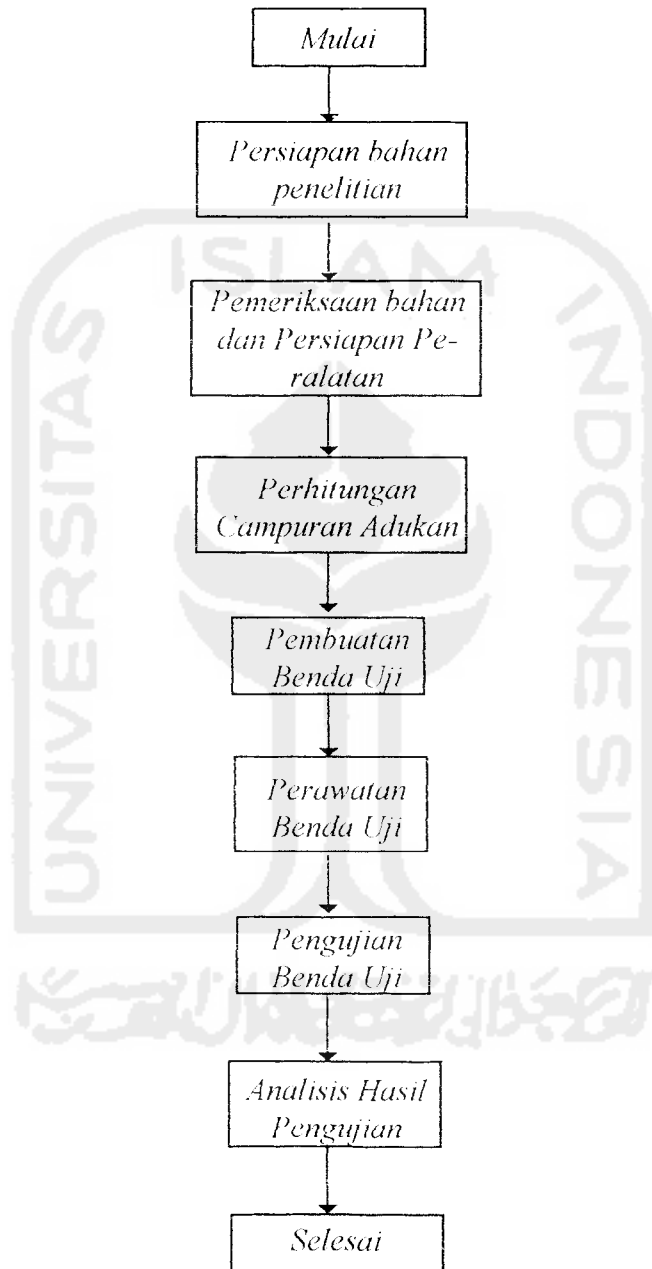


UNIVERSITAS ISLAM INDONESIA

DIAGRAM ALIR PENELITIAN





LABORATORIUM JALAN RAYA

FAKULTAS TEKNIK SIPIL DAN PERENCANAAN UII

Jl. Kaliurang Km. 14,4 Teip. 95330 Yogyakarta 55584

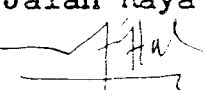
PEMERIKSAAN BERAT JENIS AGREGAT HALUS

Contoh dari : Karang Sambung Diperiksa Oleh :
Jenis Contoh : Serpentin Syamsudin
Diperiksa tgl : 15 Agustus 1997 Sukanto HM

KETERANGAN	BENDA UJI	
	I	II
BERAT BENDA UJI DALAM KEADAAN BASAH JENUH (SSD)	500	
BERAT VICNOMETER + AIR (B)	672	
BERAT VICNOMETER + AIR + BENDA UJI (BT)	970	
BERAT SAMPE KERING OVEN (BK)	476	
BERAT JENIS = $\frac{BK}{(B + 500 - BT)}$	2,356	
BERAT SSD = $\frac{500}{(B + 500 - BT)}$	2,475	
BJ SEMU = $\frac{BK}{(B + BK - BT)}$	2,670	
PENYERAPAN = $\frac{(500 - BK)}{(BK)} \times 100\%$	5,040	

Yogyakarta, 15 Agustus 1997

Lab. Jalan Raya UII


Ir. Miftahul Fauziah



LABORATORIUM JALAN RAYA

FAKULTAS TEKNIK SIPIL DAN PERENCANAAN UII


Jl. Kaliurang Km. 14,4 Telp. 95330 Yogyakarta 55584

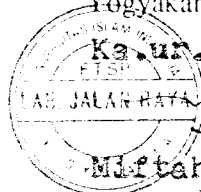
PEMERIKSAAN BERAT JENIS AGREGAT HALUS

Contoh dari : Sungai Progo, Yogya Diperiksa Oleh :
Jenis Contoh : P a s i r Sukanto HM & Syamsudin
Diperiksa tgl : 2 September 1997

KETERANGAN	BENDA UJI	
	I	II
BERAT BENDA UJI DALAM KEADAAN BASAH JENUH (SSD)	500 gram	
BERAT VICNOMETER + AIR (B)	674 gram	
BERAT VICNOMETER + AIR + BENDA UJI (BT)	992 gram	
BERAT SAMPE KERING OVEN (BK)	492 gram	
BERAT JENIS = $\frac{BK}{(B + 500 - BT)}$	2,703	
BERAT SSD = $\frac{500}{(B + 500 - BT)}$	2,747	
BJ SEMU = $\frac{BK}{(B + BK - BT)}$	2,827	
PENYERAPAN = $\frac{(500 - BK)}{(BK)} \times 100 \%$	1,526 %	

Yogyakarta, 2 September 1997

Koordinator Lab. Jalan Raya. 



Miftahul Fauziah, ST.



LABORATORIUM JALAN RAYA

FAKULTAS TEKNIK SIPIL DAN PERENCANAAN

UNIVERSITAS ISLAM INDONESIA

Jl. Kaliurang Km. 14,4 Telp. 95330 Yogyakarta 55584

PEMERIKSAAN KEAUSAN AGREGAT (ABRASI TEST)

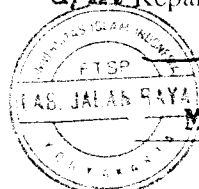
AASHTO T 96 - 77

Contoh dari : Karang Sambung, Gombong Dikerjakan Oleh :
Jenis Contoh : Agregat SERPENTIN Sukanto HM.
DI TEST TANGGAL : 1 Agustus 1997 DIPERIKSA : Miftahul F, ST.
Untuk Proyek : Penelitian Tugas Akhir.

JENIS GRADASI		BENDA UJI	
SARINGAN		I	II
LOLOS	TERTAHAN		
72.2 mm (3")	63.5 mm (2,5")		
63.5mm (2,5")	50,8 mm (2")		
50,8mm (2")	37,5 mm (1,5")		
37,5 mm (1,5")	25,4 mm (1")		
25,4mm (1")	19,0 mm (3/4")		
19,0 mm (3/4")	12,5 mm (0,5")	2500 gram	
12,5 mm (0,5")	09,5 mm (3/4")	2500 gram	
09,5 mm (3/8")	06,3 mm (1/4")		
06,3 mm (1/4")	4,75 mm (No 4)		
4,75 mm (No 4)	2,36 mm (No 8)		
JUMLAH BENDA UJI (A)		5000 gram	
JUMLAH TERTAHAN DI SIEVE 12 (B)		3115 gram	
KEAUSAN = $\frac{(A - B)}{A} \times 100 \%$		37,7 %	

Yogyakarta, 2 Agustus 1997

a/n. Kepala Lab Jalan Raya FT. UII



Miftahul Fauziah, ST.

PERHITUNGAN NILAI Σ (TAMPANG LINTANG SERAPAN) NEUTRON

Rumus-rumus yang digunakan :

1. $I_0 = I_{in} - I_{cp}$
2. $I_t = I_x - I_{cp}$
3. $I_t = I_0 e^{-\Sigma t x}$ atau $\Sigma t = (1/x) \ln (I_0/I_t)$
4. $\Sigma t = \Sigma t \cdot \Delta \Sigma t$
5. $\Delta \Sigma t = \sqrt{(\partial \Sigma t / \partial x)^2 \sigma_x^2 + (\partial \Sigma t / \partial I_0)^2 \sigma_{I_0}^2 + (\partial \Sigma t / \partial I_t)^2 \sigma_{I_t}^2}$
6. $\partial \Sigma t / \partial x = -(1/x^2) \ln (I_0/I_t)$
7. $\partial \Sigma t / \partial I_0 = 1/(x I_0)$
8. $\partial \Sigma t / \partial I_t = - (1/x I_t)$

Tabel. Laju Cacah Neutron Campuran Fungsi Ketebalan Beton Serpentin

No.	Tebal Beton (cm)	Laju Cacah I_0 (Ceb/mmf)					I_0 rata-rata	Laju Cacah I_t (Ceb/mmf)					I_t rata-rata
		I_{01}	I_{02}	I_{03}	I_{04}	I_{05}		I_{t1}	I_{t2}	I_{t3}	I_{t4}	I_{t5}	
1.	6	19827	19645	19854	19625	19498	19690	4101	4269	4264	4302	4308	4249
2.	12	22165	21839	22228	22445	22633	22262	3153	3139	3193	3227	3179	3178
3.	18	23753	23688	23641	24016	24362	23892	2358	2287	2344	2367	2468	2365
4.	24	23753	23688	23641	24016	24362	23892	1868	1888	1896	1917	1946	1963
5.	30	23753	23688	23641	24016	24362	23892	1665	1642	1737	1716	1702	1692
6.	36	23753	23688	23641	24016	24362	23892	1537	1603	1674	1584	1558	1591

Tabel. Laju Cacah Neutron Campuran Fungsi Ketebalan Beton Campuran

No.	Tebal Beton (cm.)	Laju Cacah I ₀ (Ccb/mnt)					I ₀ rata-rata	Laju Cacah It (Ccb/mnt)					It rata-rata
		I ₀₁	I ₀₂	I ₀₃	I ₀₄	I ₀₅		I _{t1}	I _{t2}	I _{t3}	I _{t4}	I _{t5}	
1.	6	17874	17681	17486	17073	17668	17556	3861	4012	3982	4040	3979	3975
2	12	20668	20575	20887	20665	20879	20735	2801	2827	2893	2921	2909	2870
3.	18	20668	20575	20887	20665	20879	20735	2240	2197	2310	2265	2289	2260
4.	24	20668	20575	20887	20665	20879	20735	1848	1820	1764	1789	1859	1816
5	30	20668	20575	20887	20665	20879	20735	1616	1639	1594	1591	1664	1621
6.	36	22541	22767	22735	22732	22756	22706	1488	1525	1520	1521	1423	1495

Tabel. Ringkasan Hasil Perhitungan Σt (Tampang Lintang Serapan) Neutron Terhadap Ketebalan Beton Serpentin

Tebal (cm)	Σt	$\partial \Sigma t / \partial x$	$\partial \Sigma t / \partial I_0$	$\partial \Sigma t / \partial It$	σx^2	σI_0	σIt	$\Delta \Sigma t$	Σt (cm ⁻¹)
6	0.25557	-0.0426	8.46E-6	-3.92E-5	0.78	59.9523	33.9523	0.038	0.25557±0.038
12	0.16222	-0.0135	3.74E-6	-2.62E-5	1.10	120.1040	13.8174	0.014	0.16222±0.014
18	0.12819	-0.0071	2.33E-6	-2.35E-5	1.34	120.0357	26.2198	0.0082	0.12849±0.0082
24	0.10542	-0.0044	1.74E-6	-2.19E-5	1.55	120.0357	11.9063	0.0055	0.10542±0.0055
30	0.08825	-0.0029	1.40E-6	-1.97E-5	1.73	120.0357	15.4013	0.0038	0.08825±0.0038
36	0.07526	-0.0021	1.16E-6	-1.75E-5	1.90	120.0357	21.0590	0.0029	0.07526±0.0029

Tabel. Ringkasan Hasil Perhitungan Σt (Tampang Lintang Serapan) Neutron Terhadap Ketebalan Beton Campuran

Tebal (cm)	Σt	$\frac{\partial \Sigma t}{\partial x}$	$\frac{\partial \Sigma t}{\partial I_0}$	$\frac{\partial \Sigma t}{\partial I_t}$	σx^2	σI_0	σI_t	$\Delta \Sigma t$	Σt (cm ⁻¹)
6	0.24756	-0.0413	9.49E-6	-4.19E-5	0,78	121,2406	27,3167	0,037	0,24756±0,037
12	0.16479	-0.0137	4.02E-6	-2.90E-5	1,10	56,1530	21,2236	0,014	0,16479±0,014
18	0.12314	-0.0068	2.68E-6	-2.46E-5	1,34	56,1530	17,5898	0,0079	0,12314±0,0079
24	0.10147	-0.0042	2.01E-6	-2.29E-5	1,55	56,1530	15,9022	0,0052	0,10147±0,0052
30	0.08496	-0.0028	1.61E-6	-2.06E-5	1,73	56,1530	12,3726	0,0037	0,08496±0,0037
36	0.07557	-0.0021	1.22E-6	-1.86E-5	1,90	37,3968	17,2441	0,0029	0,07557±0,0029

Tabel Laju Cacah Neutron Cepat Fungsi Ketebalan Beton Serpentin

No.	Tebal Beton (cm)	Laju Cacah I ₀ (Ccb/mm)					I ₀ rata-rata	Laju Cacah I _t (Ccb/mm)					I _t rata-rata
		I ₀₁	I ₀₂	I ₀₃	I ₀₄	I ₀₅		I _{t1}	I _{t2}	I _{t3}	I _{t4}	I _{t5}	
1.	6	735	656	724	719	727	712	245	242	232	241	253	243
2.	12	735	656	724	719	727	712	146	156	146	157	135	148
3.	18	735	656	724	719	727	712	101	102	99	83	99	97
4.	24	735	656	724	719	727	712	81	55	61	59	64	64
5.	30	735	656	724	719	727	712	56	55	69	60	62	60
6.	36	735	656	724	719	727	712	59	52	56	59	53	56

Tabel. Laju Cacah Neutron Cepat Fungsi Ketebalan Beton Campuran.

No.	Tebal Beton (cm)	Laju Cacah I _o (Ceb/mmt)					I _o rata-rata	Laju Cacah It (Ceb/mmt)					It rata-rata
		I _{o1}	I _{o2}	I _{o3}	I _{o4}	I _{o5}		It ₁	It ₂	It ₃	It ₄	It ₅	
1.	6	697	682	730	689	690	698	241	226	206	240	213	225
2	12	697	682	730	689	690	698	150	140	153	135	149	145
3.	18	697	682	730	689	690	698	99	99	94	103	94	98
4.	24	697	682	730	689	690	698	78	86	55	65	90	75
5.	30	697	682	730	689	690	698	58	63	69	58	57	61
6.	36	697	682	730	689	690	698	54	45	50	48	57	51

Tabel. Ringkasan Hasil Perhitungan Σt (Tampang Lintang Serapan) Neutron Terhadap Ketebalan Beton Serpentin

Tebal (cm)	Σt	$\frac{\partial \Sigma t}{\partial x}$	$\frac{\partial \Sigma t}{\partial I_0}$	$\frac{\partial \Sigma t}{\partial I_t}$	$\frac{\partial \Sigma t}{\partial t}$	σ_x^2	σ_{I_0}	σ_{I_t}	$\Delta \Sigma t$	Σt (cm ⁻¹)
6	0.17917	-0.0299	2.34E-4	-6.86E-4	0.78	12.7797	3.0332	0.027	0.17917±0.027	
12	0.13091	-0.0109	1.17E-4	-5.63E-4	1.10	12.7797	3.5889	0.012	0.13091±0.012	
18	0.11074	-0.0062	7.80E-5	-5.73E-4	1.34	12.7797	3.1305	0.0075	0.11074±0.0075	
24	0.10038	-0.0042	5.85E-5	-6.51E-4	1.55	12.7797	4.0200	0.0059	0.10038±0.0059	
30	0.08246	-0.0027	4.68E-5	-5.56E-4	1.73	12.7797	2.2450	0.0037	0.08246±0.0038	
36	0.07063	-0.0020	3.90E-5	-4.96E-4	1.90	12.7797	1.3115	0.0029	0.07063±0.0029	

Tabel. Ringkasan Hasil Perhitungan Σt (Tampang Lintang Serapan) Neutron Terhadap Ketebalan Beton Campuran.

Tebal (cm)	Σt	$\frac{\partial \Sigma t}{\partial \alpha}$	$\frac{\partial \Sigma t}{\partial I_0}$	$\frac{\partial \Sigma t}{\partial I_t}$	σ_x^2	σ_{I_0}	σ_{I_t}	$\Delta \Sigma t$	Σt (cm ⁻¹)
6	0.18869	-0.0314	2.39E-4	-7.41E-4	0,78	7,7725	6,2833	0,028	0,18869±0,028
12	0.13096	-0.0109	1.19E-4	-5.75E-4	1,10	7,7725	3,0332	0,012	0,13096±0,012
18	0.10907	-0.0061	7.96E-5	-5.67E-4	1,34	7,7725	1,5362	0,0071	0,10907±0,0071
24	0.09295	-0.0039	5.97E-5	-5.56E-4	1,55	7,7725	5,8481	0,0059	0,09295±0,0059
30	0.08124	-0.0027	4.78E-5	-5.46E-4	1,73	7,7725	2,0199	0,0037	0,08124±0,0037
36	0.07268	-0.0020	3.98E-5	-5.45E-4	1,90	7,7725	1,9079	0,0030	0,07268±0,0030

Tabel. Laju Cacah Neutron Termal Fungsi Ketebalan Beton Serpentin.

No. Tebal Beton (cm)	Laju Cacah I ₀ (Ceb/mnt)					I ₀ rata-rata	Laju Cacah I _t (Ceb/mnt)					I _t rata-rata
	I ₀₁	I ₀₂	I ₀₃	I ₀₄	I ₀₅		I _{t1}	I _{t2}	I _{t3}	I _{t4}	I _{t5}	
1. 6	19092	18989	19130	18906	18771	18978	3856	4027	4032	4061	4055	4006
2. 12	19092	18989	19130	18906	18771	18978	3007	2983	3047	3070	3044	3030
3. 18	19092	18989	19130	18906	18771	18978	2257	2185	2245	2284	2369	2268
4. 24	19092	18989	19130	18906	18771	18978	1787	1833	1835	1858	1882	1839
5. 30	19092	18989	19130	18906	18771	18978	1609	1587	1668	1656	1640	1632
6. 36	19092	18989	19130	18906	18771	18978	1478	1551	1618	1525	1505	1535

Tabel Laju Cacah Neutron Termal Fungsi Ketebalan Beton Campuran.

No.	Tebal Beton (cm)	Laju Cacah I _o (Ceb/mm)					I _o rata-rata	Laju Cacah It (Ceb/mm)					It rata-rata
		I _{o1}	I _{o2}	I _{o3}	I _{o4}	I _{o5}		It ₁	It ₂	It ₃	It ₄	It ₅	
1.	6	17177	16999	16756	16384	16978	16859	3620	3786	3776	3800	3766	3750
2	12	19971	19893	20157	19976	20189	20037	2651	2687	2740	2786	2760	2725
3	18	19971	19893	20157	19976	20189	20037	2141	2098	2216	2162	2195	2162
4	24	19971	19893	20157	19976	20189	20037	1770	1734	1709	1724	1769	1741
5	30	19971	19893	20157	19976	20189	20037	1558	1576	1525	1533	1607	1560
6	36	21844	22085	22005	22043	22066	22009	1434	1480	1470	1473	1366	1445

Tabel. Ringkasan Hasil Perhitungan Σt (Tampang Lintang Serapan) Neutron Terhadap Ketebalan Beton Serpentin

Tebal (cm)	Σt	$\frac{\partial \Sigma t}{\partial x}$	$\frac{\partial \Sigma t}{\partial I_0}$	$\frac{\partial \Sigma t}{\partial I_t}$	σx^2	σI_0	σI_t	$\Delta \Sigma t$	Σt (cm ⁻¹)
6	0.25925	-0.0432	8.78E-6	-4.16E-5	0.78	58,0531	34,0840	0.038	0,25925±0,038
12	0.15289	-0.0127	4.39E-6	-2.75E-5	1,10	58,0531	13,8896	0,013	0,15289±0,013
18	0.11802	-0.0066	2.93E-6	-2.45E-5	1,34	58,0531	26,8296	0,0077	0,11802±0,0077
24	0.09725	-0.0041	2.20E-6	-2.27E-5	1,55	58,0531	14,0940	0,0051	0,09795±0,0051
30	0.08178	-0.0027	1.76E-6	-2.04E-5	1,73	58,0531	13,4015	0,0036	0,08178±0,0036
36	0.6985	-0.0019	1.46E-6	-1.81E-5	1,90	58,0531	21,3485	0,0026	0,06985±0,0026

Tabel. Ringkasan Hasil Perhitungan Σt (Lampang Lintang Serapan) Neutron Terhadap Ketebalan Beton Campuran.

Tebal (cm)	Σt	$\frac{\partial \Sigma t}{\partial x}$	$\frac{\partial \Sigma t}{\partial I_0}$	$\frac{\partial \Sigma t}{\partial t}$	σx^2	σI_0	σt	$\Delta \Sigma t$	Σt (cm ⁻¹)
6	0.25052	-0.0418	9.89E-6	-4.44E-5	0.78	121.8391	29.4129	0.037	0.25052±0.037
12	0.16626	-0.0139	4.16E-6	-3.06E-5	1.10	51.5042	21.9918	0.015	0.16626±0.015
18	0.12370	-0.0069	2.77E-6	-2.57E-5	1.34	51.5042	18.4846	0.008	0.12370±0.008
24	0.10180	-0.0042	2.08E-6	-2.39E-5	1.55	51.5042	10.9307	0.0052	0.10180±0.0052
30	0.08510	-0.0028	1.66E-6	-2.14E-5	1.73	51.5042	13.3011	0.0037	0.08510±0.0037
36	0.07565	-0.0021	1.26E-6	-1.92E-5	1.90	38.6895	18.9694	0.0030	0.07565±0.0030

Nama Benda Uji : Beton Serpentin Slump : 7,5
 Umur Benda Uji : 28 hari Dibuat : 30 September 1997
 Metode : DREUX Diuji : 28 Oktober 1997

Tabel. Hasil Uji Kuat Tekan Kubus Beton

No.	Panjang (cm)	Lebar (cm)	Tinggi (cm)	BERAT (kg)	VOLUME (cm ³)	BERAT JENIS (kg/m ³)	BEBAN MAX (KN)	KUAT TEKAN (kg/cm ²)	SLUMP (cm)
1.	14,64	14,41	14,465	6657	3051,5711	2182,4823	218	103,3359	7,5
2.	14,62	14,50	14,860	6907	3150,1714	2193,5314	175	82,5511	7,5
3.	14,61	14,47	14,815	6905	3131,9903	2206,2648	208	98,3886	7,5
4.	14,64	14,55	14,730	6905	3137,6668	2202,2734	172	80,7466	7,5
5.	14,70	14,45	14,640	6918	3109,7556	2225,2553	203	95,9593	7,5
6.	14,54	14,49	14,920	6757	3147,7380	2147,5739	170	80,5785	7,5
7.	14,80	14,60	14,730	7065	3182,8584	2221,2738	190	88,3483	7,5
8.	14,40	14,01	14,550	6532	2935,3752	2224,5878	161	79,8041	7,5
9.	14,97	14,50	14,620	7192	3173,4903	2265,6442	212	100,0047	7,5
10.	14,68	14,52	14,770	6867	3148,2787	2182,1448	209	98,0514	7,5
11.	14,68	14,52	14,640	6976	3120,5687	2236,7718	214	100,6714	7,5
12.	14,63	14,57	14,920	7029	3180,3338	2210,4598	196	91,9501	7,5
13.	14,92	14,36	14,920	7086	3196,6279	2217,9622	197	95,1364	7,5
14.	14,66	14,65	14,770	7067	3172,1381	2228,7806	208	96,8482	7,5
15.	14,63	14,56	14,640	6873	3118,5074	2202,9770	187	87,7882	7,5
16.	14,64	14,32	14,770	6806	3096,4537	2199,2901	205	97,7844	7,5

Nama Benda Uji : Beton Campuran Slump : 7,5
 Umur Benda Uji : 28 hari Dibuat : 29 September 1997
 Metode : DREUX Diuji : 27 Oktober 1997

Tabel Hasil Uji Kuat Tekan Kubus Beton

No.	Panjang (cm)	Lebar (cm)	Tinggi (cm)	BERAT (kg)	VOLUME (cm ³)	BERAT JENIS (kg/m ³)	BEBAN MAX (KN)	KUAT TEKAN (kg/cm ²)	SLUMP (cm)
1.	14,900	14,530	15,10	7944	3269,1047	2428,7995	328	151,5033	7,5
2.	14,410	14,255	14,80	7466	3040,1353	2457,1275	360	175,2553	7,5
3.	14,650	14,440	14,70	7682	3109,7262	2469,6708	395	186,7206	7,5
4.	14,665	14,610	14,81	7669	3173,1262	2417,1746	305	142,3533	7,5
5.	14,900	14,210	14,80	7718	3133,5892	2463,6286	362	172,1285	7,5
6.	14,815	14,600	14,70	7716	3179,5953	2427,9820	385	179,3868	7,5
7.	14,660	14,500	14,82	7804	3150,2874	2475,9646	405	190,5255	7,5
8.	14,785	14,500	14,33	7503	3072,1012	2441,3258	365	175,6023	7,5
9.	14,690	14,620	14,99	7790	3219,3693	2419,7286	338	157,3793	7,5
10.	14,770	14,490	14,72	7522	3150,3347	2387,0480	340	162,7216	7,5
11.	14,420	14,260	14,35	7633	3156,4082	2417,3046	310	150,7568	7,5
12.	14,670	14,510	14,88	7714	3167,3821	2434,1869	315	147,9834	7,5
13.	14,610	14,590	14,96	7767	3188,8721	2436,5982	345	161,8503	7,5
14.	14,450	14,330	14,11	7662	3128,8050	2448,2190	330	159,3676	7,5
15.	14,630	14,550	14,61	7658	3109,9796	2463,0387	355	166,9995	7,5
16.	14,670	14,440	14,59	7522	3090,6697	2433,1296	281	133,3779	7,5