

Data Sheet

• Product Type	• WL Antenna
• Model Number	• PIT 1701
• Revision	• R01
• Yageo PN / Main Antenna	• CAN4313 743 012501B
• Part No. / Advantech / Main	• 1750003304

Yageo (Taiwan) Ltd.

16, West 3rd Street, N.E.P.Z Kaohsiung, 811 Taiwan, R.O.C

Yageo Electronics (China) Co, Ltd.

No. 10, Zhu Yuan Road, Suzhou New District, Suzhou, PRC

2.4GHz, 5GHz Multiple Bands Antenna for WLAN Applications.	Yageo Part Number: CAN4313 743 012501B		R01	May.28,2008
BY /	Grace Chen	DATE	May.28,2008	

1. Specifications

1.1 Specification of WLAN Antenna

Frequency Range (GHz)	2.40 ~ 2.50 for Main 2.40 ~ 2.50 for Aux
VSWR	2.0 : 1 max
Peak Gain	1.30 dBi for 2.40~2.50GHz band
Radio Connector	Hirose U.FL , IPex MHF , Technova or equivalent
Coaxial Cable	Nissei , Kurabe , HL Tech. or equivalent
Impedance	50Ω Nominal.
Cable Diameter	1.13mm
Cable Color	Black for Main / WLAN White for Aux / WLAN
Operating Temperature	-40~90℃
Maximum Power	1W
Polarization	Linear
Radiation Pattern	Omni-directional

1.2 Photos of Antenna Product



Main Antenna (CAN4313 743 012501B)

2. Test Methodology

2.1 Test Equipment

The equipment for the antenna measurement we used is as follows:

- A. Network Analyzer, support up to 8GHz, to measure the VSWR and input impedance of antenna.
- B. Three-dimensional anechoic chamber to measure antenna gain and radiation pattern (Standard horn antenna was used to calibrate the chamber)
- C. Digital caliper to measure the dimensions.
- D. Climatic chamber for mechanical tests.

2.2 Test Setup

2.2.1 Frequency Range

2.40~2.50GHz, GHz for WLAN application.

2.2.2 Antenna Configuration

The antenna basically has two parts; the stamping and the cable assembly with the connector on one side. The detailed drawing is attached.

2.2.3 VSWR

The VSWR is measured with network analyzer that support up to 8GHz. All the measurements are performed with the customer provided fixture. Figure 1 shows the typical schematic diagram for measuring VSWR.

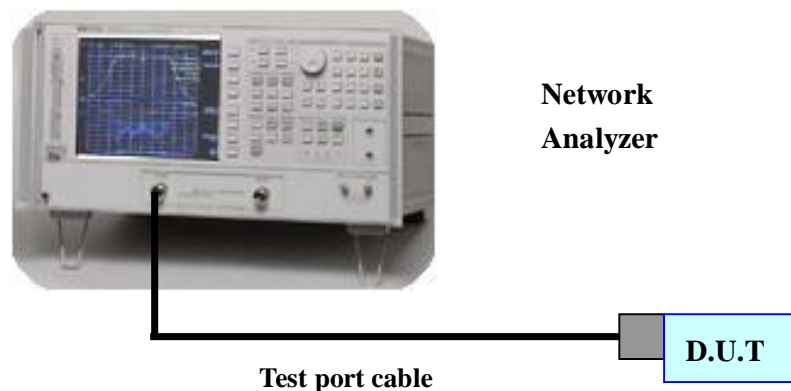


Figure 1. The schematic diagram for measuring VSWR

2.2.4 Radiation Pattern and Gain

The radiation pattern of antenna is measured in both horizontal polarization and vertical polarization. The radiation pattern measurements are performed in the three-dimensional anechoic chamber. The chamber provides less than -30dB reflectivity from 800MHz through 8GHz . The chamber is calibrated using both standard dipole antenna and horn antenna. The Gain here is expressed as dBi that standardizes the isotropic antenna. The Gain measurements and antenna radiation pattern are also performed in the same chamber described previously. Figure 2 shows the schematic diagram for measuring radiation pattern and Gain.

3D Anechoic Chamber

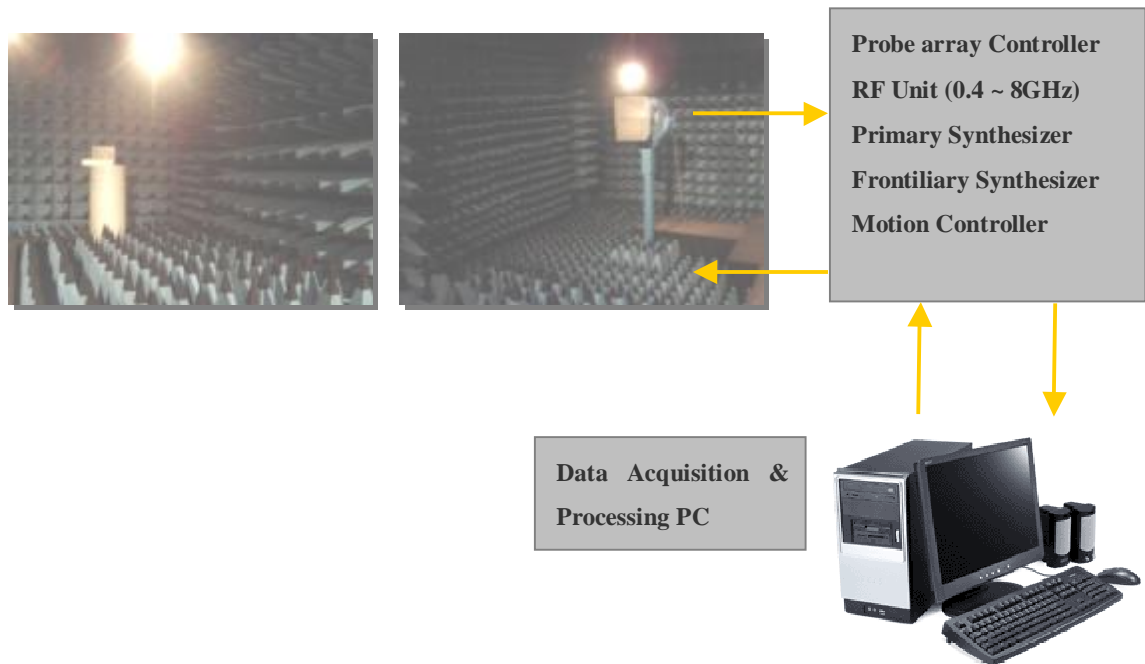


Figure 2. The schematic diagram for measuring radiation pattern and Gain

3. Performance Data

3.1 VSWR of Antenna in the Fixture

3.1.1 VSWR of Main WLAN Antenna

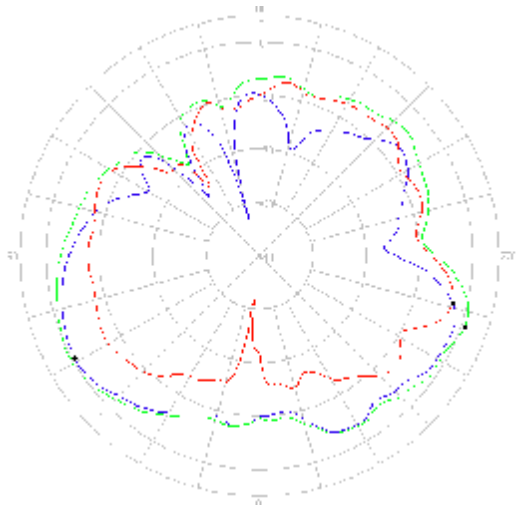


3.1.2 VSWR of Aux WLAN Antenna

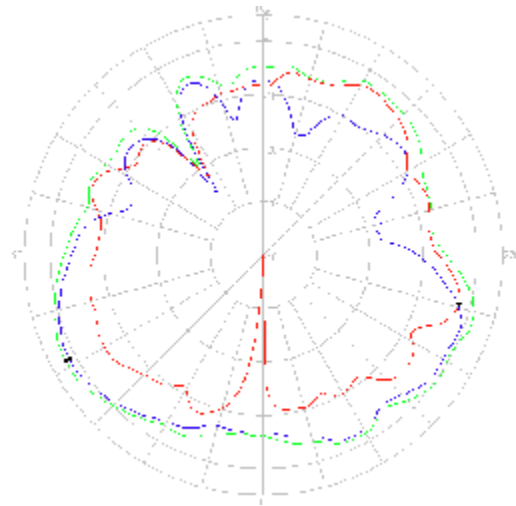


3.2 Radiation Pattern and Gain /2D DATA

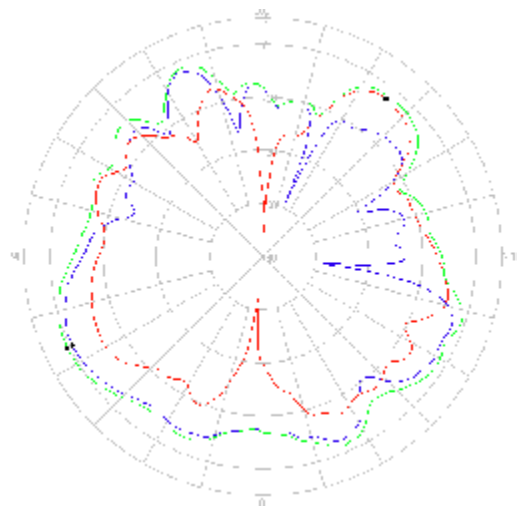
3.2.1 Low Frequency (2.40GHz~2.50GHz) of Main WLAN Antenna



2.40GHz

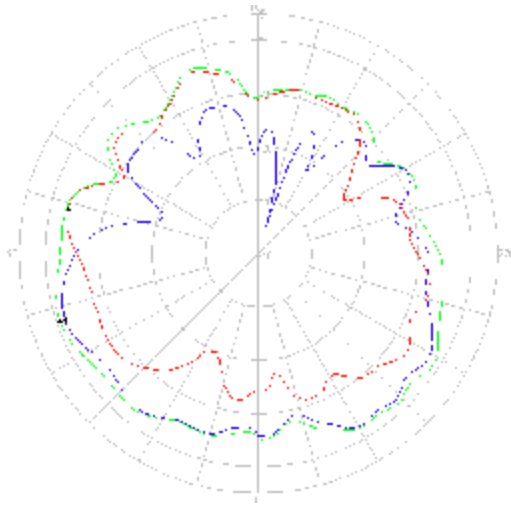


2.45GHz

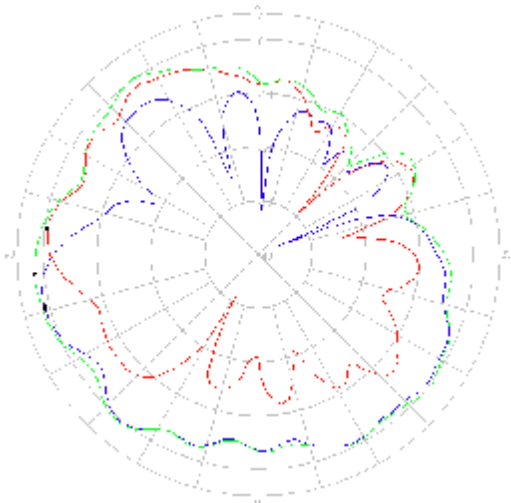


2.50GHz

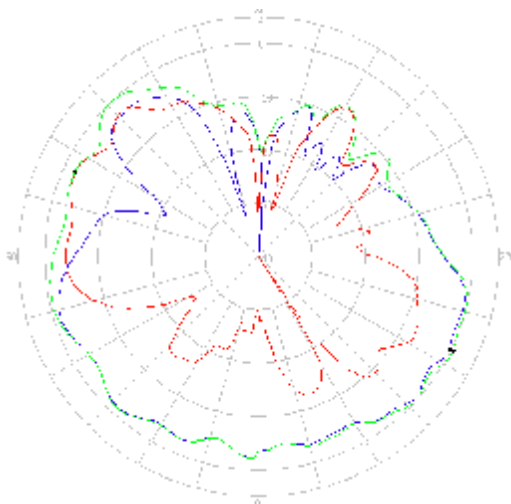
3.2.2 Low Frequency (2.40GHz~2.50GHz) of Aux WLAN Antenna



2.40GHz



2.45GHz



2.50GHz

3.2.3 Average Gain (dBi) Summary

Main Antenna

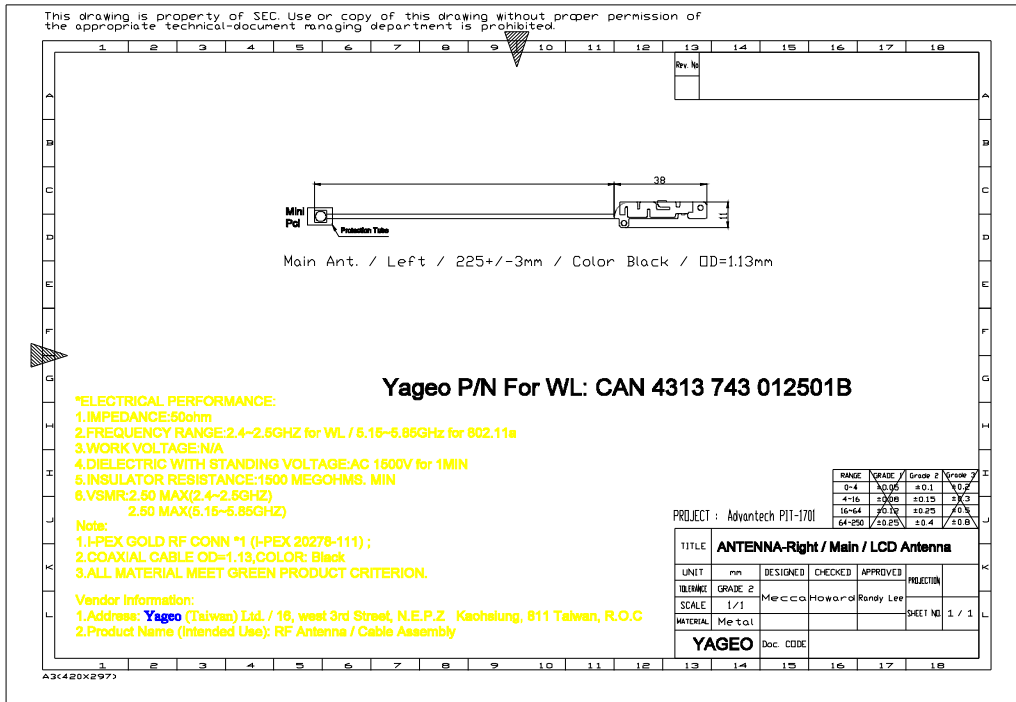
Main / Right Side Antenna Gain						
Frequency	Max Value (dBi)			Average (dBi)		
	H-pol	V-pol	Total	H-pol	V-pol	Total
2400(MHz)	-0.38	-2.65	0.75	-5.95	-8.84	-4.15
2450(MHz)	1.30	-2.03	2.11	-4.44	-7.23	-2.61
2500(MHz)	-0.46	-2.34	0.61	-5.68	-8.11	-3.71

Aux Antenna

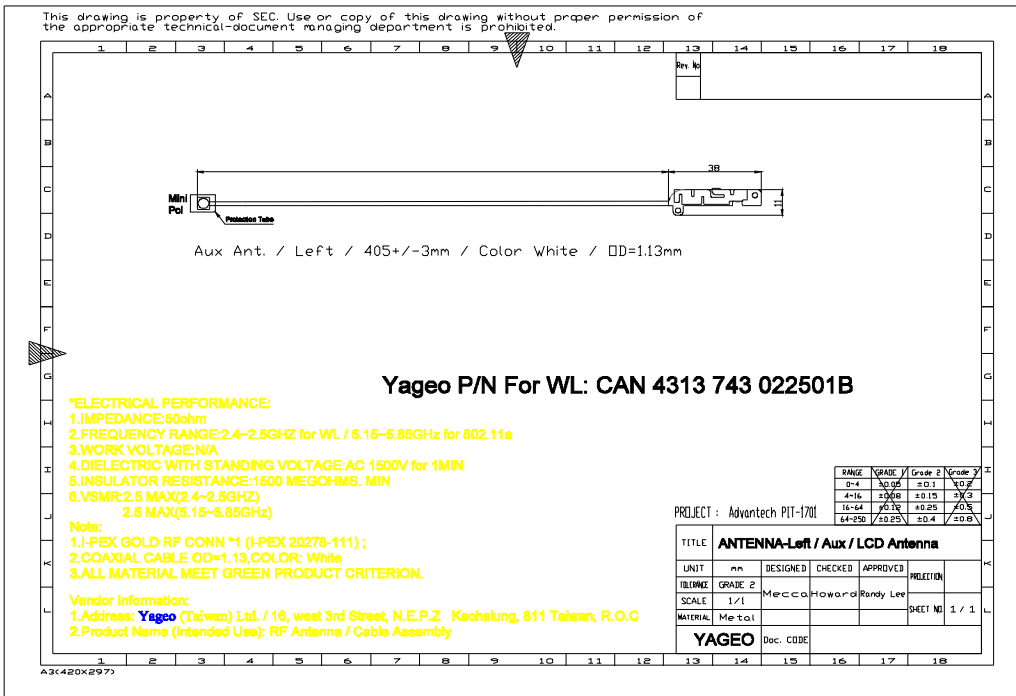
Aux / Left Side Antenna Gain						
Frequency	Max Value (dBi)			Average (dBi)		
	H-pol	V-pol	Total	H-pol	V-pol	Total
2400(MHz)	-1.56	-3.22	-0.62	-6.58	-8.61	-4.47
2450(MHz)	1.02	-0.52	1.82	-4.19	-6.93	-2.34
2500(MHz)	-0.20	-2.13	0.59	-4.56	-9.21	-3.28

4. Antenna Drawing

4.1 Drawing of Main Antenna



4.2 Drawing of Aux Antenna



5. Reliability Data For Antenna Patch (Reference To IEC)

IEC 384-10/ CECC 32 100 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
4.12	4(Na)	Rapid change of temperature	-40 °C (30 minutes) to +90 °C (30 minutes); 5 cycles	No visible damage Central Freq. Change ± 6%
4.14	3(Ca)	Damp heat	500 ± 12 hours at 40 °C; 90 to 95 % RH	No visible damage 2 hours recovery Central Freq. Change ± 6%
4.15		Endurance	500 ± 12 hours at 90 °C;	No visible damage 2 hours recovery Central Freq. Change ± 6%

6. Ordering Information: Yageo Ordering P/N Code

The antennas may be ordered by using the Yageo P/N ordering code. These code numbers can be determined by the following rules:

CAN4313 7 43 01 250 1B
F C MS T A P

F. Family Code

CAN43 = Antenna

C. Packing Type Code

13 = Carton

M. Materials Code

7 = Coaxial Cable

S. Size/Series Code

43 = PIT 1701

T. Left Antenna/Right Antenna

01 = Main Antenna

02 = Aux Antenna

A. Working Frequency

250 = WLAN

P. Packing

1B = 1000 pcs packing

7. Revision Control

Revision	Date	Content	Remark
R01	May.28, 2008	New issued	N/A

8. UL Card

Cable

04-12-20:14:18 :NISSEI ELECTRIC GOLDEN TACT :053 485 8908 # 1/ 1

AVLV2 July 24, 2004
Appliance Wiring Material - Component
NISSEI ELECTRIC CO LTD ES6198
RYUYO FACTORY 206-1 AZA-OHNISHI, MATSUMOTO IWATA-
GUN, RYUYO-CITY, SHIZUOKA 438-0205 JAPAN

Table of Recognized Styles

Single-conductor, thermoplastic insulation.							
1164	1331	1504	1677	1850	2023	2196	2369
1180	1332	1517	1690	1863	2036	2209	2382
1196	1333	1529	1702	1875	2048	2221	2394
1199	1354	1538	1711	1884	2057	2230	2403
1212	1370	1577	1750	1923	2096	2269	2442
1213	1371	1584	1757	1930	2103	2276	2449
1226	1508	1586	1769	1942	2115	2288	2461
1227	1512	1591	1774	1947	2120	2293	2466
1238	1513	1592	1775	1948	2121	2294	2467
Multiple-conductor, thermoplastic insulation.							
2095	2268	2441	2614	2787	2960	3133	3306
2096	2269	2442	2615	2788	2961	3134	3307

8/10/2004 Underwriters Laboratories Inc. Card 1 of 3

AVLV2 July 24, 2004
Appliance Wiring Material - Component
NISSEI ELECTRIC CO LTD ES6198

Table of Recognized Styles

Single-conductor, thermoplastic insulation.							
2097	2270	2443	2616	2789	2962	3135	3308
2098	2271	2444	2617	2790	2963	3136	3309
2099	2288	2500	2673	2846	3019	3192	3365
2100	2289	2501	2674	2847	3020	3193	3366
2101	2292	2504	2677	2850	3023	3196	3369
2102	2293	2505	2678	2851	3024	3197	3370
2103	2294	2506	2679	2852	3025	3198	3371
2104	2295	2507	2680	2853	3026	3199	3372
2105	2296	2508	2681	2854	3027	3200	3373
2106	2297	2509	2682	2855	3028	3201	3374
2107	2298	2510	2683	2856	3029	3202	3375
2108	2299	2511	2684	2857	3030	3203	3376
2109	2300	2512	2685	2858	3031	3204	3377
2110	2301	2513	2686	2859	3032	3205	3378
2111	2302	2514	2687	2860	3033	3206	3379
2112	2303	2515	2688	2861	3034	3207	3380
2113	2304	2516	2689	2862	3035	3208	3381
2114	2305	2517	2690	2863	3036	3209	3382
2115	2306	2518	2691	2864	3037	3210	3383
2116	2307	2519	2692	2865	3038	3211	3384
2117	2308	2520	2693	2866	3039	3212	3385
2118	2309	2521	2694	2867	3040	3213	3386
2119	2310	2522	2695	2868	3041	3214	3387
2120	2311	2523	2696	2869	3042	3215	3388
2121	2312	2524	2697	2870	3043	3216	3389
2122	2313	2525	2698	2871	3044	3217	3390
2123	2314	2526	2699	2872	3045	3218	3391
2124	2315	2527	2700	2873	3046	3219	3392
2125	2316	2528	2701	2874	3047	3220	3393
2126	2317	2529	2702	2875	3048	3221	3394
2127	2318	2530	2703	2876	3049	3222	3395
2128	2319	2531	2704	2877	3050	3223	3396
2129	2320	2532	2705	2878	3051	3224	3397
2130	2321	2533	2706	2879	3052	3225	3398
2131	2322	2534	2707	2880	3053	3226	3399
2132	2323	2535	2708	2881	3054	3227	3400
2133	2324	2536	2709	2882	3055	3228	3401
2134	2325	2537	2710	2883	3056	3229	3402
2135	2326	2538	2711	2884	3057	3230	3403
2136	2327	2539	2712	2885	3058	3231	3404
2137	2328	2540	2713	2886	3059	3232	3405
2138	2329	2541	2714	2887	3060	3233	3406
2139	2330	2542	2715	2888	3061	3234	3407
2140	2331	2543	2716	2889	3062	3235	3408
2141	2332	2544	2717	2890	3063	3236	3409
2142	2333	2545	2718	2891	3064	3237	3410
2143	2334	2546	2719	2892	3065	3238	3411
2144	2335	2547	2720	2893	3066	3239	3412
2145	2336	2548	2721	2894	3067	3240	3413
2146	2337	2549	2722	2895	3068	3241	3414
2147	2338	2550	2723	2896	3069	3242	3415
2148	2339	2551	2724	2897	3070	3243	3416
2149	2340	2552	2725	2898	3071	3244	3417
2150	2341	2553	2726	2899	3072	3245	3418
2151	2342	2554	2727	2900	3073	3246	3419
2152	2343	2555	2728	2901	3074	3247	3420
2153	2344	2556	2729	2902	3075	3248	3421
2154	2345	2557	2730	2903	3076	3249	3422
2155	2346	2558	2731	2904	3077	3250	3423
2156	2347	2559	2732	2905	3078	3251	3424
2157	2348	2560	2733	2906	3079	3252	3425
2158	2349	2561	2734	2907	3080	3253	3426
2159	2350	2562	2735	2908	3081	3254	3427
2160	2351	2563	2736	2909	3082	3255	3428
2161	2352	2564	2737	2910	3083	3256	3429
2162	2353	2565	2738	2911	3084	3257	3430
2163	2354	2566	2739	2912	3085	3258	3431
2164	2355	2567	2740	2913	3086	3259	3432
2165	2356	2568	2741	2914	3087	3260	3433
2166	2357	2569	2742	2915	3088	3261	3434
2167	2358	2570	2743	2916	3089	3262	3435
2168	2359	2571	2744	2917	3090	3263	3436
2169	2360	2572	2745	2918	3091	3264	3437
2170	2361	2573	2746	2919	3092	3265	3438
2171	2362	2574	2747	2920	3093	3266	3439
2172	2363	2575	2748	2921	3094	3267	3440
2173	2364	2576	2749	2922	3095	3268	3441
2174	2365	2577	2750	2923	3096	3269	3442
2175	2366	2578	2751	2924	3097	3270	3443
2176	2367	2579	2752	2925	3098	3271	3444
2177	2368	2580	2753	2926	3099	3272	3445
2178	2369	2581	2754	2927	3100	3273	3446
2179	2370	2582	2755	2928	3101	3274	3447
2180	2371	2583	2756	2929	3102	3275	3448
2181	2372	2584	2757	2930	3103	3276	3449
2182	2373	2585	2758	2931	3104	3277	3450
2183	2374	2586	2759	2932	3105	3278	3451
2184	2375	2587	2760	2933	3106	3279	3452
2185	2376	2588	2761	2934	3107	3280	3453
2186	2377	2589	2762	2935	3108	3281	3454
2187	2378	2590	2763	2936	3109	3282	3455
2188	2379	2591	2764	2937	3110	3283	3456
2189	2380	2592	2765	2938	3111	3284	3457
2190	2381	2593	2766	2939	3112	3285	3458
2191	2382	2594	2767	2940	3113	3286	3459
2192	2383	2595	2768	2941	3114	3287	3460
2193	2384	2596	2769	2942	3115	3288	3461
2194	2385	2597	2770	2943	3116	3289	3462
2195	2386	2598	2771	2944	3117	3290	3463
2196	2387	2599	2772	2945	3118	3291	3464
2197	2388	2600	2773	2946	3119	3292	3465
2198	2389	2601	2774	2947	3120	3293	3466
2199	2390	2602	2775	2948	3121	3294	3467
2200	2391	2603	2776	2949	3122	3295	3468
2201	2392	2604	2777	2950	3123	3296	3469
2202	2393	2605	2778	2951	3124	3297	3470
2203	2394	2606	2779	2952	3125	3298	3471
2204	2395	2607	2780	2953	3126	3299	3472
2205	2396	2608	2781	2954	3127	3300	3473
2206	2397	2609	2782	2955	3128	3301	3474
2207	2398	2610	2783	2956	3129	3302	3475
2208	2399	2611	2784	2957	3130	3303	3476
2209	2400	2612	2785	2958	3131	3304	3477
2210	2401	2613	2786	2959	3132	3305	3478
2211	2402	2614	2787	2960	3133	3306	3479
2212	2403	2615	2788	2961	3134	3307	3480
2213	2404	2616	2789	2962	3135	3308	3481
2214	2405	2617	2790	2963	3136	3309	3482
2215	2406	2618	2791	2964	3137	3310	3483
2216	2407	2619	2792	2965	3138	3311	3484
2217	2408	2620	2793	2966	3139	3312	3485
2218	2409	2621	2794	2967	3140	3313	3486
2219	2410	2622	2795	2968	3141	3314	3487
2220	2411	2623	2796	2969	3142	3315	3488
2221	2412	2624	2797	2970	3143	3316	3489
2222	2413	2625					

I-Pex Connector

QMF22 Component - Plastics		Friday, May 21, 2004				E106764			
POLYPLASTICS CO LTD									
VECTRA DIV 18-1 KONAN 2-CHOME MINATO-KU TOKYO 108-8280 JAPAN									
Material Designation: A430									
Product Description: Liquid Crystal Polymer (LCP), thermotropic aromatic polyester, designated "Vectra" furnished as pellets.									
Color	Min. Thick. (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str	IEC GWIT	IEC GWFI
NC, BK	0.43	V-0	-	-	130	130	130	-	-
	0.81	V-0	-	-	130	130	130	-	-
CTI: -		HVTR: -		D495: -			IEC Ball Pressure (°C): -		
Dielectric Strength (kV/mm): -			Volume Resistivity (10¹⁰ohm-cm): -			Dimensional Stability(%): -			
ISO Tensile Strength (MPa): -			ISO Flexural Strength (MPa): -			ISO Heat Deflection (°C): -			
ISO Tensile Impact (kJ/m²): -			ISO Izod Impact (kJ/m²): -			ISO Charpy Impact (kJ/m²): -			
Report Date: 8/19/1992					Underwriters Laboratories Inc®				
UL94 small-scale test data does not pertain to building materials, furnishings and related contents. UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in components and parts of end-product devices and appliances, where the acceptability of the combination is determined by ULI.									

QMF22 Component - Plastics		Friday, October 24, 2003				E213445			
WINTECH POLYMER LTD									
18-1 KONAN 2-CHOME MINATO-KU TOKYO 108-8280 JP									
Material Designation: 3118(e)									
Product Description: Polybutylene Terephthalate (PBT), designated "Duranox" furnished as pellets.									
Color	Min. Thick. (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str	IEC GWIT	IEC GWFI
ALL	0.75	V-0	4	0	130	-	130	-	-
	1.5	V-0	3	0	130	120	130	-	-
NC, BK	3	5VA	2	0	130	120	130	-	-
CTI: 2		IEC CTI (V): -		HVTR: 3		D495: 6			IEC Ball Pressure (°C): -
Dielectric Strength (kV/mm): 23			Volume Resistivity (10¹⁰ohm-cm): 16			Dimensional Stability(%): 0.0			
ISO Tensile Strength (MPa): -			ISO Flexural Strength (MPa): -			ISO Heat Deflection (°C): -			
ISO Tensile Impact (kJ/m²): -			ISO Izod Impact (kJ/m²): -			ISO Charpy Impact(kJ/m²): -			
(e) Virgin and regrind from 1 to 50 by weight incl. have the same basic material characteristics (at a minimum thickness of 0.75 mm), except for 310EP which has a lower as received Tensile Impact value from 26 to 50 percent regrind.									
Report Date: 11/15/2000					Underwriters Laboratories Inc®				
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QMFZ2 Component - Plastics

Friday, October 24, 2003

E106764

POLYPLASTICS CO LTD
 VECTRA DIV 18-1 KONAN 2-CHOME MINATO-KU TOKYO 108-8280 JAPAN

Material Designation: E136i(d)(e)

Product Description: Liquid Crystal Polymer (LCP), thermotropic aromatic polyester, designated "Vectra" furnished as pellets.

Color	Min. Thick. (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str	IEC GWIT	IEC GWFI
ALL	0.75	V-0	2	4	240	220	240	-	-
	1.5	V-0	1	4	240	220	240	-	-
	3.0	V-0	0	4	240	220	240	-	-
CTI: 4		HVTR: 0		D495: 5			IEC Ball Pressure (°C): -		
Dielectric Strength (kV/mm): 39		Volume Resistivity (10 ¹⁰ ohm-cm): 16			Dimensional Stability(%): 0				
ISO Tensile Strength (MPa): -		ISO Flexural Strength (MPa): -			ISO Heat Deflection (°C): -				
ISO Tensile Impact (kJ/m ²): -		ISO Izod Impact (kJ/m ²): -			ISO Charpy Impact (kJ/m ²): -				

- (d) Virgin and regrind up to 50% by weight incl. have the same basic material characteristics for colors NC and BK.
- (e) In addition, regrind at 26 to 50% have the same basic characteristics at a minimum of 1.5mm except RTI's for the Mechanical w/Impact property is 180C.

Report Date: 8/19/1992 Underwriters Laboratories Inc®

UL94 small-scale test data does not pertain to building materials, furnishings and related contents. UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in components and parts of end-product devices and appliances, where the acceptability of the combination is determined by ULL.

Protective Tube



YDPU2;E255532

Tubing, Extruded Insulating - Component

See General Information for Tubing, Extruded Insulating - Component

E255532

Cat. No.	Max V	Max Oper Temp	Shrinkdown Class	Col Recognized	Max Temp Rated Oil Resistance * C	VW-1 Rated #
Heat shrinkable polyolefin tubing.						
G5(+)	600	125	—	ALL Except CL	—	Yes##
AIS(\$)	600	125	II	Black, only	—	—
Not-Heat-Shrinkable PVC Tubing						
NSPVC	600	105	—	ALL	—	Yes

*Tubing is considered to comply with the optional oil resistant requirements only if it is so marked.

#Tubing is considered to comply with the optional VW-1 flammability requirements only if it is so marked.

VW-1 flammability rating limited to Black color only.

+ in the designation represents CTMS/TMS.

(S) with meltable liner, may be followed by optional suffix (Z), (2X), (3X) or (4X).

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