

BM77

KEY FEATURES

1. Chipset

6x6 mm² 40 pin QFN IS1677NM

2. Interfaces

- Multi function GPIO interface
- Bluetooth RF interface
- UART up to 921600 bps
- I2C for external EEPROM

3. Radio Characteristics

Frequency Band: 2402-2480 GHz

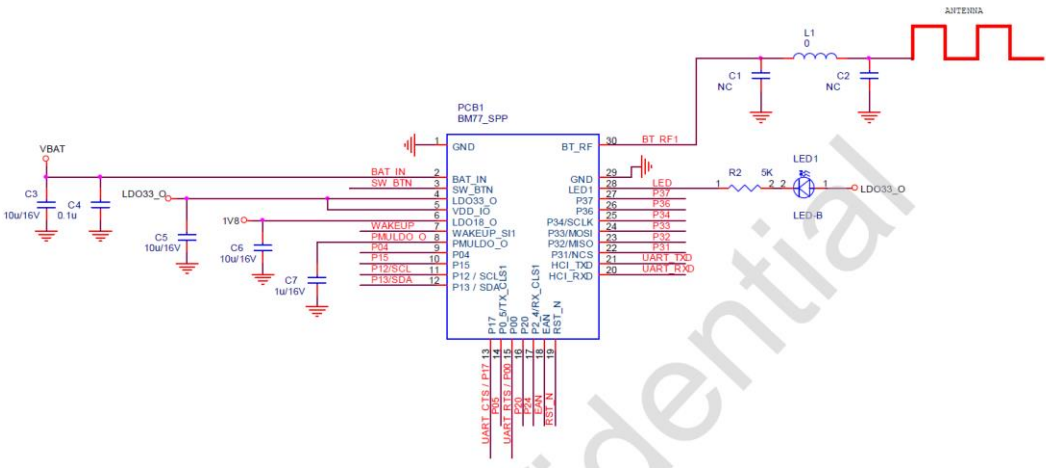
Number of Channels:

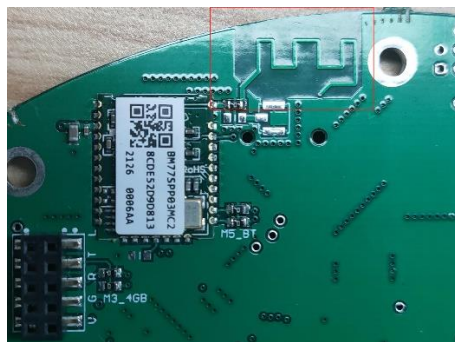
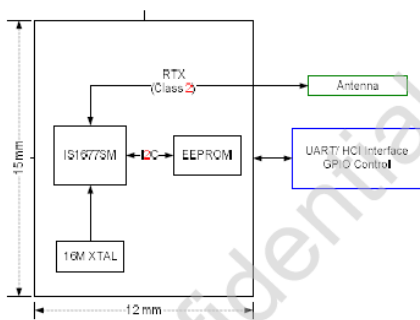
Bluetooth V3.0 + EDR	Low Energy
79 channels (1MHz)	40 MHz channels (2MHz)

Antenna manufacturer: Advanced Electronics Factory

Address: Advanced Electronics Factory, Lishan Village, Qianwu Town, Doumen District, Zhuhai, Guangdong

Structural characteristics



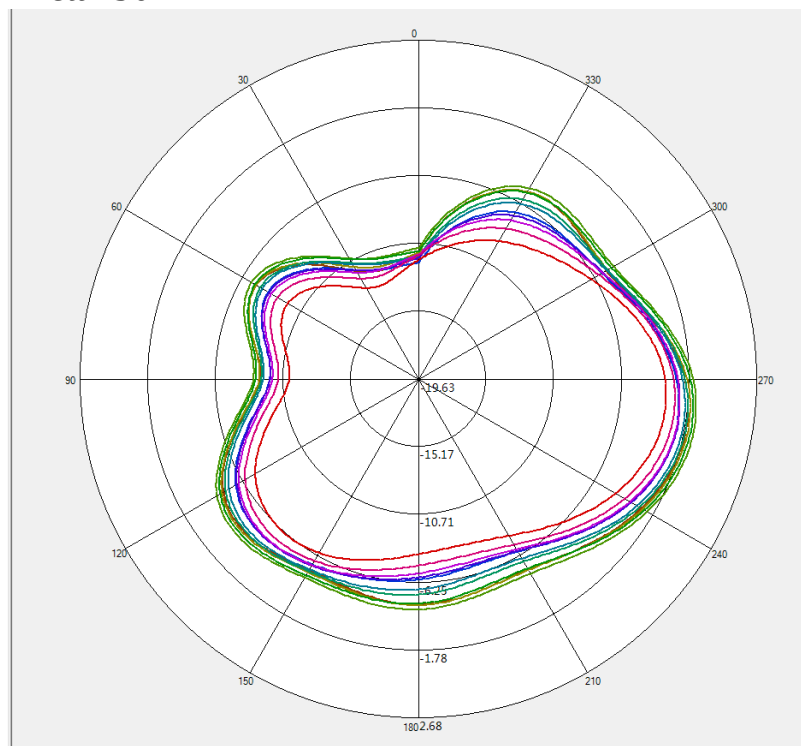


marked tolerance $\pm 0.3\text{mm}$)

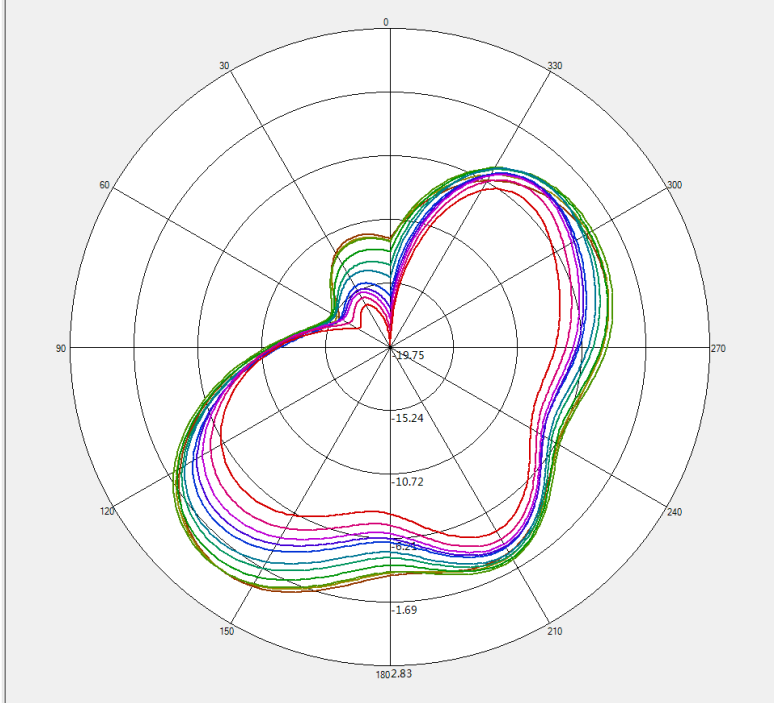
Test data

2400-2480 MHz			
frequency MHz	efficiency %	efficiency (dB)	gain (dBi)
2400	25%	-6.0	-1.5
2410	28%	-5.5	-1.0
2420	33%	-4.8	-0.3
2430	35%	-4.6	0.0
2440	37%	-4.4	0.3
2450	39%	-4.0	0.6
2460	39%	-4.1	0.6
2470	41%	-3.8	0.6
2480	37%	-4.3	0.1
平均值	35.01%	-4.6	-0.1

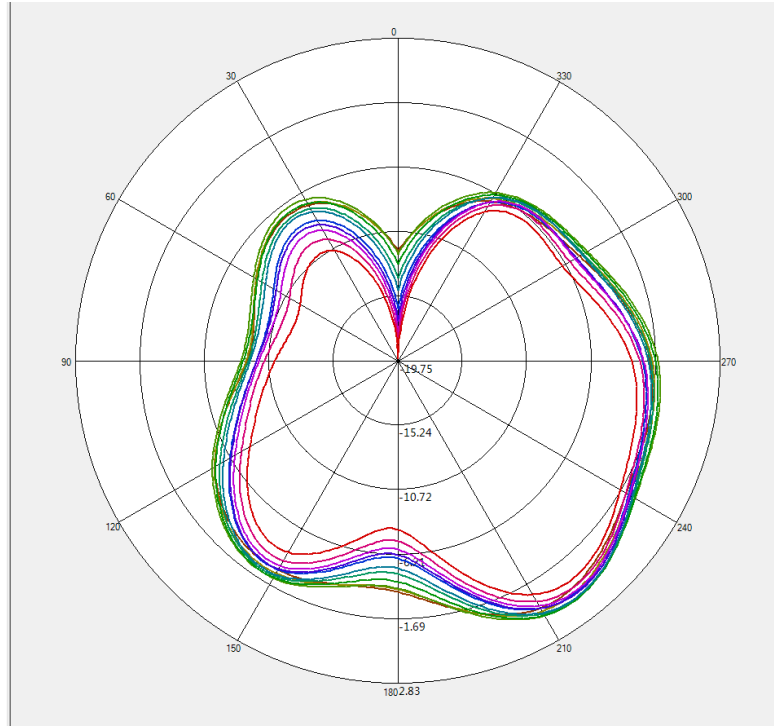
Theta=90 °



Phi=0 °



Phi=90 °



PM264

Product introduction

PM264 is an high precision measuring antenna which can support full bands for GPS, BDS , GLONASS and Galileo. It can be widely used in surveying and mapping, Oceanographic survey, Geological examination, Bridge deformation monitoring, Automated Port, unmanned aerial vehicle and other applications.

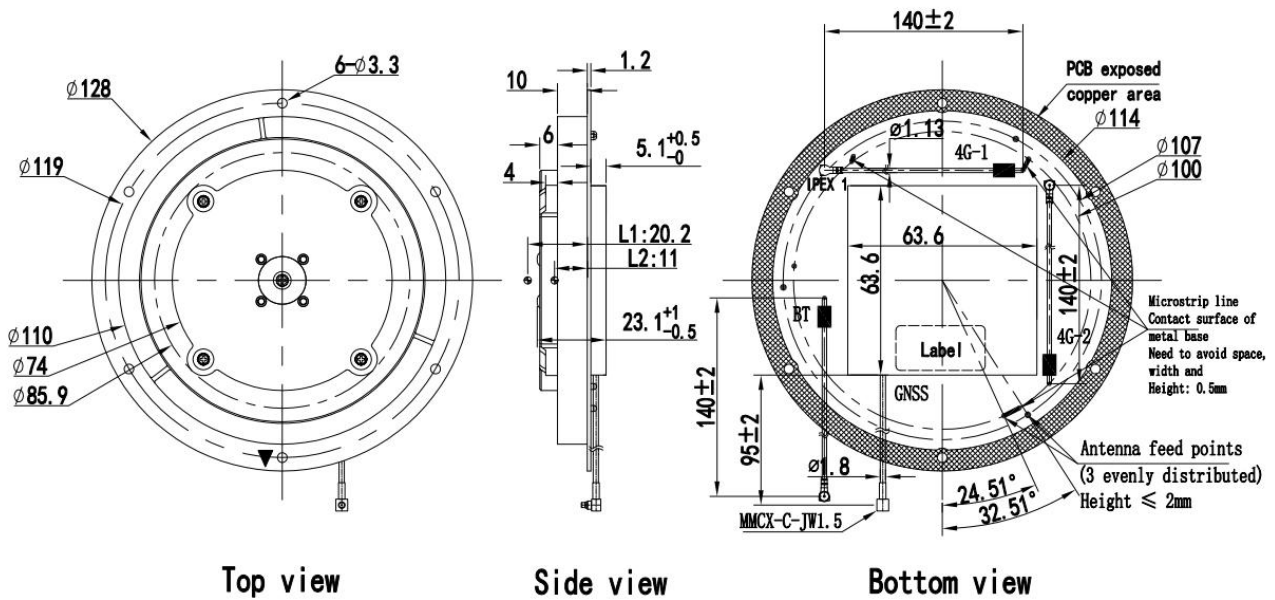
KEY FEATURES

- 1、 Small Size, light weight, compact structure;
- 2、 Supports 4G, Wi-Fi, Bluetooth;
- 3、 Strong anti-interference ability to endure the harsh operating environments;
- 4、 Powerful system compatibility, easy for machine integration;
- 5、 Stable phase center guarantees the accuracy of positioning within millimeter level.

Technical parameters

Passive antenna characteristics		Low noise amplifier characteristics		Structure & environmental adaptability	
Frequency range	BDS B1/B2/B3 GPS L1/L2/L5 GLONASS L1/L2/L3 GALILEO E1/E5a/E5b/E6 L-Band 4G (690MHz-960MHz, 1710-2700MHz) BT/WIFI (2400MHz~2500MHz)	Gain	L2: $40\pm 2\text{dB}$ L1: $38\pm 2\text{dB}$	Dimensions	$\Phi 128*23.1\text{mm}$
Antenna impedance	50Ω	Noise figure	$\leq 1.8\text{dB}$	Weight	$\leq 220\text{g}$
Polarization mode	GNSS: Right-handed circular polarization 4G/BT/WIFI: Linear polarization	Output voltage standing wave ratio	≤ 2.0	Connector	MMCX-C-JW1.5 IPEX-1
Antenna axis ratio	GNSS: $\leq 3\text{dB}$	In-band flatness	$\pm 2\text{dB}$	Operating temperature	$-40^{\circ}\text{C}\sim +85^{\circ}\text{C}$
Horizontal coverage	$0^{\circ}\sim 360^{\circ}$	Operating voltage	DC3.3~12V	Storage temperature	$-55^{\circ}\text{C}\sim +85^{\circ}\text{C}$
Antenna output voltage standing wave ratio	GNSS: ≤ 1.5 BT/WIFI: ≤ 2 4G: ≤ 6	Working Electric Current	$\leq 50\text{mA}$	Storage humidity	95% non-condensing
Error Range of phase center	$\pm 2\text{mm}$				

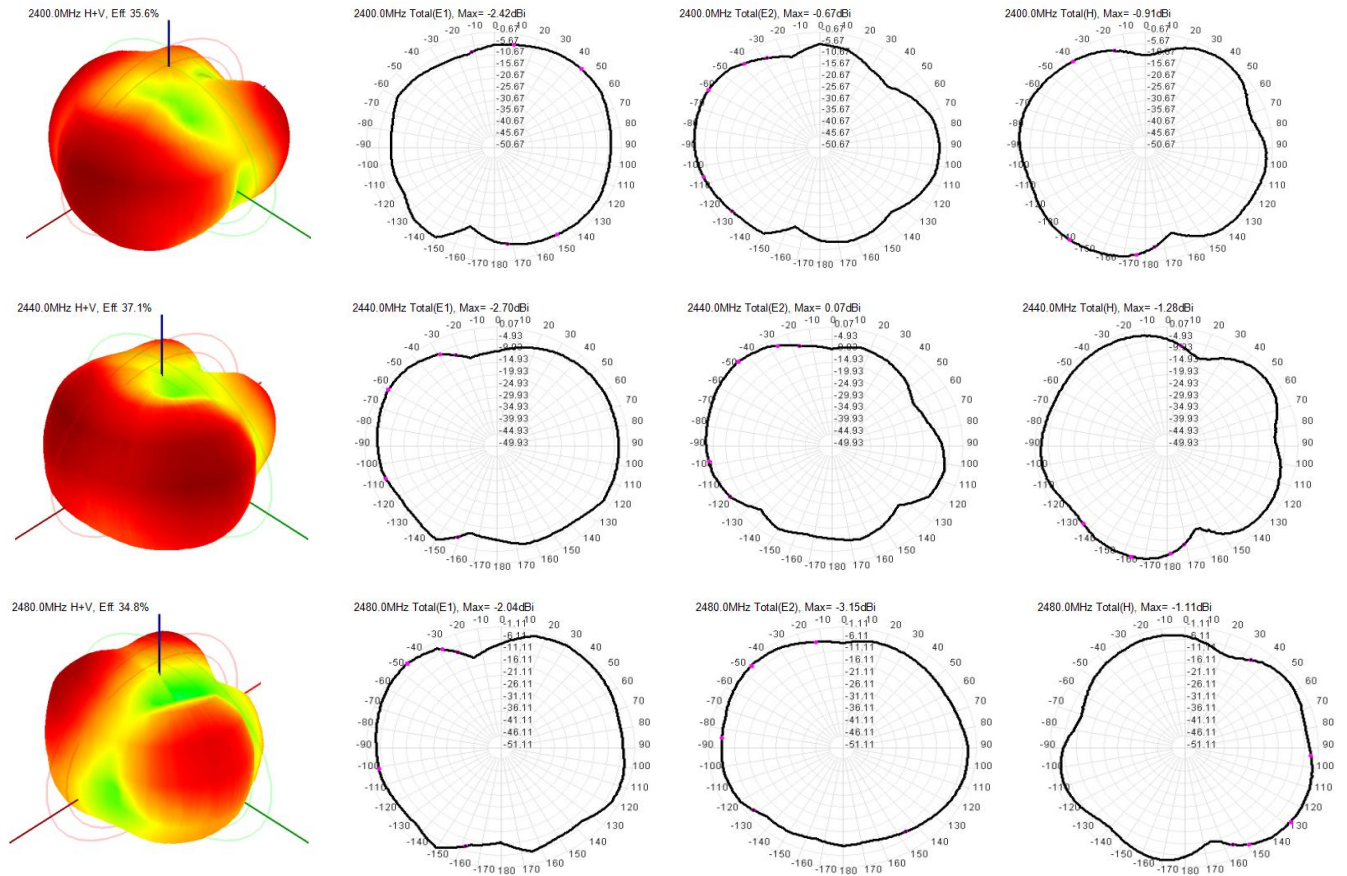
Structural characteristics



(Unmarked tolerance $\pm 0.3\text{mm}$)

Test data

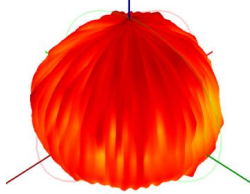
BT/WIFI:



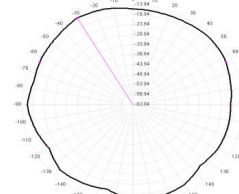
Frequency (MHz)	Gain (dBi)	Efficiency (%)	Frequency (MHz)	Gain (dBi)	Efficiency (%)
2400	-0.22	35.60	2460	0.67	36.93
2410	-0.48	32.72	2470	0.82	35.66
2420	-0.61	31.63	2480	1.40	34.81
2430	-0.30	34.89	2490	1.19	30.06
2440	0.34	37.13	2500	0.91	26.97
2450	0.54	37.19			

4G:

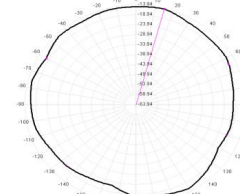
700.0MHz H+V, E# 1.7%



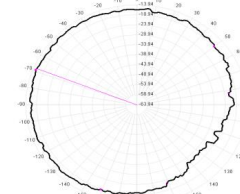
700.0MHz Total(E1), Max=-13.94dB



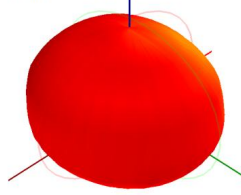
700.0MHz Total(E2), Max=-14.36dB



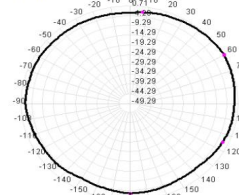
700.0MHz Total(H), Max=-15.26dB



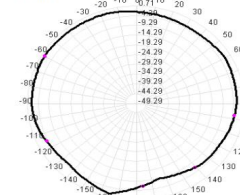
900.0MHz H+V, E# 57.8%



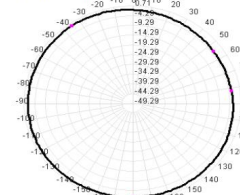
900.0MHz Total(E1), Max=0.71dB



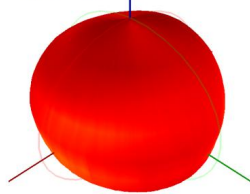
900.0MHz Total(E2), Max=-0.80dB



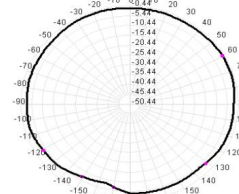
900.0MHz Total(H), Max=-0.62dB



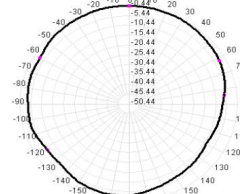
960.0MHz H+V, E# 43.8%



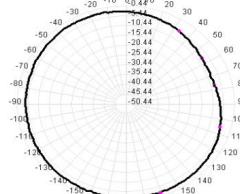
960.0MHz Total(E1), Max=-1.41dB



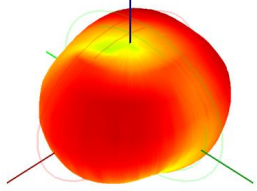
960.0MHz Total(E2), Max=-0.44dB



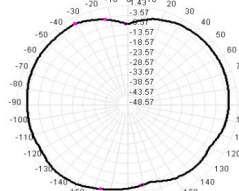
960.0MHz Total(H), Max=-2.69dB



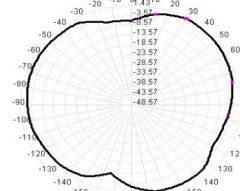
1700.0MHz H+V, E# 59.3%



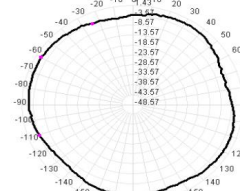
1700.0MHz Total(E1), Max=-1.49dB



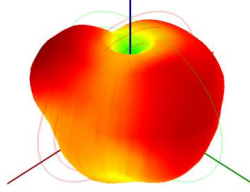
1700.0MHz Total(E2), Max=1.43dB



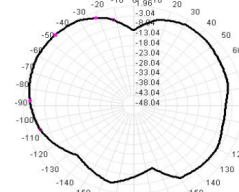
1700.0MHz Total(H), Max=-0.94dB



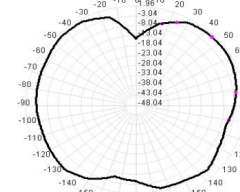
1900.0MHz H+V, E# 61.0%



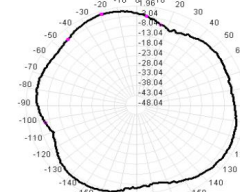
1900.0MHz Total(E1), Max=1.96dB



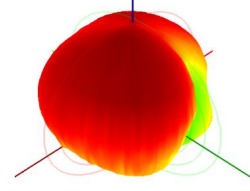
1900.0MHz Total(E2), Max=0.79dB



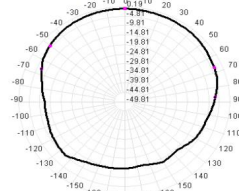
1900.0MHz Total(H), Max=0.28dB



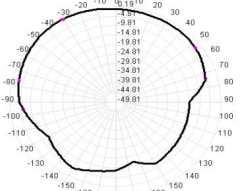
2300.0MHz H+V, E# 32.0%



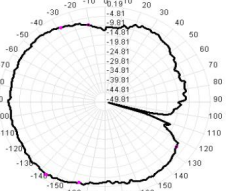
2300.0MHz Total(E1), Max=-0.89dB



2300.0MHz Total(E2), Max=0.19dB



2300.0MHz Total(H), Max=-2.60dB



Frequency (MHz)	Gain (dBi)	Efficiency (%)	Frequency (MHz)	Gain (dBi)	Efficiency (%)
690	-12.65	1.52	1900	1.96	61.05
700	-13.94	1.71	1925	2.39	53.49
710	-10.12	2.55	1950	1.36	40.43
720	-9.86	3.62	1975	1.33	36.36
730	-8.92	4.73	2000	1.16	33.03
740	-8.71	5.25	2025	1.32	33.01
750	-7.47	7.45	2050	2.35	40.85
760	-5.25	8.92	2075	2.76	55.27
770	-3.79	12.33	2100	2.67	56.92
780	-1.92	19.65	2125	2.41	47.65
790	-0.55	21.62	2150	1.56	40.18
800	0.11	27.46	2175	1.37	44.73
810	0.33	33.65	2200	1.57	46.89
820	0.12	46.10	2225	1.83	49.29
830	0.29	52.34	2250	1.68	40.78
840	-0.55	58.01	2275	1.11	36.02
850	-1.00	57.82	2300	0.19	31.99
860	-1.10	62.53	2325	-0.13	27.85
870	-1.31	63.67	2350	-1.32	25.44
880	-0.52	66.76	2375	-0.42	28.13
890	0.41	59.56	2400	1.50	35.65
900	0.71	57.85	2425	0.33	30.17
910	1.07	63.74	2450	0.78	31.25
920	0.32	57.66	2475	0.24	30.22
930	0.92	56.92	2500	0.69	31.15
940	0.62	55.92	2525	0.15	30.07
950	0.27	51.60	2550	0.60	30.92
960	-0.44	41.58	2575	0.06	30.05
1700	1.43	43.81	2600	0.51	30.60
1725	2.62	59.30	2625	0.97	31.12
1750	3.04	67.47	2650	0.42	30.15
1775	3.67	76.47	2675	0.88	30.62
1800	3.29	73.63	2700	0.30	30.32
1825	2.73	69.31			
1850	2.98	73.24			
1875	3.11	71.26			