# Magnetic field in decay pipe (simulation vs data)



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Beam sim meeting Oct 05, 2022



### MM events change for no magnetic field in decay pipe



The MM1 is most sensitive to the change of madnetic fields in decay pipe(low enerfy muons)

Nominal: Magnetic field in decay pipe: Bx = 0.1 Gauss, By = -0.3 Gauss, Bz = -0.07 Gauss

#### MM events change for twice magnetic field in decay pipe



The pattern change at MM1 is opposite to no field

Nominal: Magnetic field in decay pipe: Bx = 0.1 Gauss, By = -0.3 Gauss, Bz = -0.07 Gauss Twice the field in x and y: Bx = 0.2 Gauss, By = -0.6 Gauss, Bz = -0.07 Gauss

### Bx= 0.1 gaus By= -0.3 gaus

Data / nominal



	ratio at pixels ( mm1 )												
0 -	0.823	0.794	0.833	0.831	0.0821	0.883	0.898	0.882	0.96				
	0.81	0.785	0.897	0.953	0.956	0.936	0.934	0.946	0.925				
	0.796	0.81	0.931	0.971	0.975	1.03	1	0.998	0.923				
	.0013	30.84	0.916	0.98	0.979	0.995	0.982	0.95	1.01				
	0.853	0.844	0.956	1.01	1	1.04	1.07	1.04	1				
	0.874	0.879	1.04	1.06	1.03	1.09	1.1	1.1	1.03				
	0.905	0.923	1.03	1.2	1.07	1.05	1.11	1.1	1.1				
	0.961	0.978	1.04	1.23	1.16	1.12	1.16	1.14	1.06				
	1.05	1.02	1.04	1.29	1.17	1.15	1.14	1.22	1.13				
	0	1	2	3	4	5	6	7	8				

#### No field

ratio at pixels ( mm1 )														
0 -	0.954	0.952	0.958	0.978	0.991	0.999	1.02	1.02	1.03		- 1.020			
ч-	0.951	0.957	0.957	0.975	0.989	1.01	1.03	1.03	1.04		- 1.015			
~ ~	0.949	0.951	0.964	0.978	0.991	1.01	1.02	1.04	1.05		- 1.010			
m -	0.946	0.953	0.963	0.976	0.999	1.02	1.03	1.05	1.06		- 1.005			
4 -	0.951	0.961	0.967	0.982	1	1.03	1.05	1.05	1.06		- 1.000			
- n	0.956	0.967	0.977	0.995	1.01	1.03	1.05	1.06	1.06		- 0.995			
9 -	0.962	0.971	0.987	1	1.02	1.04	1.05	1.06	1.07		- 0.990			
~ -	0.977	0.979	0.987	1	1.02	1.04	1.05	1.05	1.08		- 0.985			
∞ -	0.974	0.98	0.999	1	1.03	1.04	1.05	1.05	1.06					
	0	1	2	' 3	4	5	6	7	8		- 0.980			

# More simulation with different magnetic field

#### **Data vs simulation**

simulation

		1	<b>'</b>	5		÷	ċ				- 0.0			
<b>00</b> -	0.104	0.171	0.245	0.302	0.314	0.291	0.231	0.16	0.0963					
<b>N</b> -	0.174	0.313	0.471	0.566	0.587	0.552	0.448	0.291	0.16		- 0.2			
<b>0</b> -	0.254	0.467	0.704	0.843	0.866	0.82	0.678	0.44	0.233					
<b>اں</b> -	0.316	0.56	0.814	0.949	0.967	0.916	0.772	0.524	0.287		- 0.4			
4 -	0.336	0.588	0.845	0.981	1	0.95	0.803	0.551	0.308					
<b>m</b> -	0.317	0.565	0.82	0.962	0.983	0.931	0.782	0.531	0.29		- 0.6			
N -	0.258	0.477	0.718	0.86	0.886	0.833	0.694	0.45	0.237					
<b>H</b> -	0.178	0.319	0.484	0.583	0.605	0.566	0.459	0.3	0.163		- 0.8			
0 -	0.107	0.176	0.254	0.31	0.326	0.3	0.239	0.165	0.0999		1.0			
	pixels ( mm1 )													





# Simulation with different Magnetic field in decay pipe

simulations

BX= -0.1	BX= 0.0	BX= 0.2	BX= 0.3
BY= -0.3	BY= -0.3	BY= -0.3	BY= -0.3

	ratio at pixels ( mm1 )													
0	1.03	1.02	1.03	1.04	1.02	1.04	1.04	1.03	1.03		- 1.04			
H.	1.03	1.02	1.03	1.03	1.03	1.03	1.03	1.03	1.02		1.04			
N	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02		- 1.02			
M.	1.02	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01					
4	0.992	1	0.997	0.999	0.996	0.998	1	0.997	1		- 1.00			
Ŋ.	0.991	0.989	0.985	0.984	0.989	0.983	0.985	0.988	0.987					
0	0.977	0.978	0.972	0.973	0.976	0.976	0.977	0.986	0.977		-0.98			
N	0.984	0.977	0.965	0.969	0.97	0.969	0.969	0.967	0.953					
<b>0</b>	0.975	0.958	0.961	0.964	0.965	0.968	0.962	0.967	0.953		-0.96			
	Ó	1	2	3	4	5	6	7	8					

	ratio at pixels ( mm1 )													
0	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.02	1.01					
H.	1	1.01	1.02	1.01	1.01	1.02	1.02	1.01	1.01					
N	1.02	1.01	1.01	1.01	1.02	1.01	1.01	1.01	1.01					
m -	1.01	1.01	1.01	1	1.01	1.01	1.01	1.01	1.01					
4	0.996	1	0.997	1	0.998	1	0.999	1.01	0.99					
ŋ.	0.999	0.998	0.993	0.991	0.995	0.99	0.994	0.995	0.98					
<u>ہ</u>	0.989	0.994	0.983	0.988	0.99	0.984	0.989	0.992	0.99					
N-	0.998	0.986	0.985	0.992	0.993	0.982	0.985	0.985	0.98					
<b>00</b> -	0.976	0.978	0.978	0.975	0.991	0.985	0.98	0.992	0.98					
	Ó	i	ź	3	4	5	6	Ż	8					

			ra	atio at	pixels (	( mm1	)		
0 -	0.985	0.967	0.983	0.98	0.976	0.975	0.978	0.989	0.978
<b>H</b> -	0.983	0.983	0.979	0.976	0.978	0.987	0.981	0.985	0.985
N -	0.991	0.989	0.985	0.983	0.991	0.985	0.986	0.988	0.992
m-	1	0.994	0.987	0.989	0.994	0.993	0.991	0.995	0.996
4 -	0.993	0.999	1	1	1	0.998	0.997	1	0.993
ŋ.	1.01	1.01	1.01	1	1.01	1	1.01	1	1.01
<b>o</b> -	1	1.01	1	1.01	1.01	1.01	1.01	1.01	1
<b>N</b> -	1.03	1.01	1.01	1.02	1.02	1.02	1.02	1.02	1.01
<b>∞</b> -	1.01	1	1.01	1.01	1.02	1.02	1.02	1.02	0.994
	0	1	2	3	4	5	6	7	8

	ratio at pixels ( mm1 )													
0	0.97	0.948	0.958	0.961	0.957	0.962	0.965	0.969	0.965					
H.	0.964	0.963	0.965	0.961	0.958	0.966	0.959	0.968	0.96					
N	0.979	0.979	0.974	0.971	0.974	0.971	0.97	0.975	0.978					
M.	0.994	0.983	0.982	0.981	0.984	0.979	0.98	0.985	0.989					
4	0.995	0.997	0.996	0.999	0.997	0.997	0.995	0.998	0.997					
ŋ.	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1					
6	1.01	1.03	1.02	1.02	1.02	1.02	1.02	1.02	1.01					
N	1.02	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.01					
<b>0</b>	1.02	1.02	1.04	1.03	1.04	1.04	1.04	1.03	1.03					
	Ó	1	2	3	4	5	6	7	8					

## Simulation with different Magnetic field in decay pipe

simulations

BX= 0.1	BX= 0.`1	BX= 0.`	BX= 0.`
BY= -0.5	BY= -0.4	BY= -0.2	BY= -0.1`

			ra	atio at	pixels (	mm1	)						ra	atio at	pixels (	mm1	)			
0	0.983	0.974	0.995	0.993	1	1	1.01	1.02	1.03	0.	0.975	0.967	0.981	0.991	0.998	1.02	1.02	1.03	1.04	
н	0.984	0.989	0.992	0.991	1	1.01	1.01	1.01	1.01	H-	0.98	0.973	0.985	0.989	1	1.02	1.02	1.04	1.04	
N	0.982	0.99	0.989	0.993	1	1.01	1.02	1.01	1.02	N	0.979	0.979	0.981	0.993	1.01	1.02	1.03	1.03	1.04	
M	0.99	0.981	0.987	0.991	0.999	1	1.02	1.02	1.03	m,	0.973	0.979	0.982	0.992	1.01	1.02	1.03	1.04	1.04	
4	0.979	0.985	0.987	0.997	1	1	1.01	1.02	1.01	4	0.971	0.973	0.981	0.993	1	1.02	1.03	1.04	1.03	
ŝ	0.987	0.99	0.991	0.992	1.01	1.01	1.02	1.02	1.02	۱۵	0.975	0.98	0.984	0.989	1.01	1.02	1.03	1.03	1.04	
9	0.98	0.991	0.989	0.995	1	1.01	1.02	1.02	1.01	۵	0.976	0.975	0.983	0.993	1.01	1.02	1.03	1.04	1.04	
~	0.986	0.988	0.99	0.999	1.01	1.01	1.01	1.01	1.01	N	0.977	0.977	0.979	0.995	1.01	1.02	1.03	1.04	1.02	
8	0.985	0.986	0.992	0.992	1.01	1.01	1.01	1.03	1.02	<b>co</b> -	0.983	0.968	0.987	0.987	1.01	1.01	1.03	1.04	1.02	
	Ó	1	ź	3	4	5	6	7	8	-	ò	1	Ż	3	4	5	6	7	8	

	ratio at pixels ( mm1 )													
0	1.01	0.997	1	0.998	0.991	0.998	0.987	0.993 0.994						
H.	1	1.01	1	0.999	0.993	0.988	0.983	0.984	0.977					
N	1.02	1.02	1.01	1	0.995	0.99	0.986	0.986	0.98					
m-	1.01	1.01	1.01	1	0.997	0.991	0.985	0.984	0.983					
4	1.01	1.01	1.01	1	0.998	0.994	0.989	0.986	0.976					
ŋ.	1.02	1.01	1.01	1	0.999	0.989	0.987	0.984	0.973					
0	1.02	1.01	1	1	0.997	0.991	0.989	0.989	0.98					
N	1.03	1.01	1	1.01	0.999	0.997	0.986	0.987	0.978					
∞ -	1	1.01	1.01	0.998	1.01	0.992	0.999	0.984	0.981					
	Ó	1	2	3	4	5	6	7	8					

	Ó	1	2	3	4	5	6	7	8
<b>00</b> -	1.02	1.01	1	1	0.998	0.977	0.972	0.962	0.95
N-	1.03	1.02	1.01	0.997	0.994	0.978	0.971	0.964	0.94
- <b>ن</b>	1.02	1.02	1.01	1	0.995	0.975	0.974	0.964	0.95
- CI	1.03	1.02	1.02	1	0.989	0.975	0.971	0.96	0.9
4-	1.02	1.02	1.01	1	0.986	0.979	0.971	0.964	0.95
m -	1.03	1.01	1.01	1	0.995	0.977	0.968	0.963	0.95
N -	1.03	1.02	1.01	1	0.992	0.979	0.969	0.962	0.95
н-	1.03	1.02	1	0.998	0.987	0.983	0.968	0.964	0.95
0-	1.02	1	1.01	0.998	0.988	0.982	0.968	0.962	0.9
			ra	atio at	pixels (	mm1	)		

# Change By with fixed Bx

#### Compare sim with data

Bx = 0.1

By =-0.3

			ra	atio at	pixels (	(mm1	)		
0-	0.879	0.82	0.853	0.846	0.0946	0.898	0.917	0.924	1.04
el -	0.842	0.796	0.898	0.946	0.953	0.94	0.932	0.955	0.97
N -	0.819	0.818	0.93	0.966	0.975	1.03	0.999	0.998	0.939
m-	0.0015	0.84	0.916	0.978	0.977	0.992	0.979	0.952	1.02
4 -	0.863	0.847	0.954	1.01	1	1.04	1.06	1.04	1.01
۰ CI	0.89	0.886	1.05	1.05	1.04	1.08	1.09	1.1	1.04
<b>0</b> -	0.921	0.933	1.02	1.2	1.07	1.05	1.11	1.11	1.11
N-	0.997	0.991	1.04	1.24	1.17	1.13	1.17	1.16	1.08
<b>0</b> -	1.1	1.05	1.06	1.31	1.19	1.16	1.16	1.27	1.18
	6	1	2	2	4	5	6	7	0

#### By =-0.5

**Simulation vs data** 

	Ó	1	2	3	4	5	6	7	8
<b>00</b> -	1.13	1.09	1.08	1.33	1.18	1.15	1.13	1.22	1.16
N -	1.02	1.02	1.06	1.25	1.16	1.11	1.14	1.13	1.06
0	0.948	0.961	1.04	1.22	1.07	1.04	1.08	1.07	1.07
ŋ.	0.916	0.908	1.07	1.07	1.03	1.07	1.07	1.07	1
4	0.892	0.873	0.976	1.02	1	1.02	1.04	1.01	0.97
M	0.00155	50.861	0.936	0.99	0.975	0.978	0.958	0.92	0.982
N	0.84	0.839	0.952	0.977	0.971	1.02	0.972	0.974	0.909
4	0.863	0.822	0.915	0.96	0.957	0.924	0.919	0.924	0.93
0	0.905	0.851	0.874	0.857	0.0951	0.887	0.901	0.899	1.01
			ra	atio at	pixels (	(mm1	)		

#### By =-0.1

			ra	atio at	pixels (	(mm1	)			_	_ 1 20
0-	0.854	0.808	0.835	0.836	0.0944	0.902	0.935	0.947	1.06		1.20
<b>H</b> -	0.81	0.773	0.881	0.935	0.953	0.943	0.95	0.977	1		- 1.15
N -	0.785	0.791	0.909	0.951	0.97	1.04	1.02	1.02	0.966		- 1.10
m.	).00144	0.817	0.892	0.965	0.969	1	0.997	0.975	1.05		- 1.05
4 -	0.835	0.819	0.931	0.992	1	1.04	1.08	1.06	1.04		- 1.00
<b>ا</b> ۵ -	0.857	0.853	1.01	1.04	1.03	1.09	1.11	1.13	1.08		- 0.95
<b>0</b> -	0.888	0.903	0.998	1.18	1.06	1.07	1.13	1.14	1.14		- 0.90
N -	0.954	0.957	1.02	1.22	1.16	1.14	1.19	1.19	1.13		- 0.85
<b>00</b> -	1.07	1.03	1.04	1.29	1.17	1.18	1.18	1.3	1.22		
	Ó	1	2	3	4	5	6	7	8		- 0.80

# Change Bx with fixed By

## **Simulation vs data**

#### Compare sim with data

By = -0.3

#### Bx = 0.3

			ra	atio at	pixels	( mm1	)			
0	0.851	0.799	0.822	0.809	0.092	0.864	0.879	0.889	1	- 1.20
H.	0.814	0.776	0.872	0.918	0.924	0.909	0.905	0.926	0.943	1.15
N	0.8	0.797	0.907	0.939	0.948	1	0.972	0.973	0.92	1.10
m	0.00147	70.831	0.902	0.968	0.963	0.98	0.963	0.939	1	- 1.05
4	0.866	0.842	0.953	1	1	1.03	1.05	1.04	1	- 1.00
Ŋ.	0.895	0.893	1.06	1.07	1.04	1.1	1.11	1.11	1.05	- 0.95
0	0.939	0.95	1.05	1.23	1.09	1.08	1.13	1.12	1.13	- 0.90
N	1.01	1.01	1.07	1.27	1.2	1.16	1.2	1.2	1.13	- 0.85
00 -	1.13	1.09	1.1	1.35	1.22	1.2	1.21	1.3	1.23	0.03
	Ó	1	2	3	4	5	6	7	8	- 0.80

Bx =	: 0	1

	Ó	1	2	3	4	5	6	7	8
<b>00</b> -	1.1	1.05	1.06	1.31	1.19	1.16	1.16	1.27	1.18
N-	0.997	0.991	1.04	1.24	1.17	1.13	1.17	1.16	1.08
<b>0</b> -	0.921	0.933	1.02	1.2	1.07	1.05	1.11	1.11	1.11
- <b>۱</b> ۵	0.89	0.886	1.05	1.05	1.04	1.08	1.09	1.1	1.04
4 -	0.863	0.847	0.954	1.01	1	1.04	1.06	1.04	1.01
<b>m</b> -	0.0015	0.84	0.916	0.978	0.977	0.992	0.979	0.952	1.02
N -	0.819	0.818	0.93	0.966	0.975	1.03	0.999	0.998	0.93
-	0.842	0.796	0.898	0.946	0.953	0.94	0.932	0.955	0.97
0-	0.879	0.82	0.853	0.846	0.0946	0.898	0.917	0.924	1.04
			ra	atio at	pixels (	(mm1	)		

Bx =	-0	.1
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			ra	atio at	pixels (	mm1	)		
0-	0.903	0.862	0.888	0.877	0.0985	0.93	0.947	0.95	1.0
<b>H</b> -	0.871	0.824	0.927	0.981	0.991	0.969	0.969	0.983	1.0
N	0.834	0.832	0.952	0.992	0.998	1.06	1.03	1.02	0.95
M	0.00151	10.852	0.93	0.994	0.99	1.01	0.995	0.963	1.03
4 -	0.864	0.846	0.955	1	1	1.04	1.06	1.04	1.0
ŋ.	0.88	0.871	1.03	1.04	1.02	1.07	1.08	1.09	1.03
<b>o</b> -	0.907	0.906	1	1.18	1.04	1.03	1.09	1.09	1.09
N-	0.973	0.956	1.01	1.19	1.13	1.09	1.13	1.13	1.0
∞ -	1.08	1.02	1.02	1.27	1.14	1.12	1.12	1.23	1.1
	Ó	1	2	3	4	5	6	7	8

#### prediction

Bx = 0.1 By = -0.3





#### prediction

Bx = 0.1 By = -0.3

			ra	atio at	pixels (	(mm1	)			_ 1 20
0-	0.879	0.82	0.853	0.846	0.0946	0.898	0.917	0.924	1.04	1.20
<b>H</b> -	0.842	0.796	0.898	0.946	0.953	0.94	0.932	0.955	0.97	1.15
<b>N</b> -	0.819	0.818	0.93	0.966	0.975	1.03	0.999	0.998	0.939	- 1.10
<b>m</b> -	0.0015	0.84	0.916	0.978	0.977	0.992	0.979	0.952	1.02	- 1.05
4 -	0.863	0.847	0.954	1.01	1	1.04	1.06	1.04	1.01	- 1.00
ŋ-	0.89	0.886	1.05	1.05	1.04	1.08	1.09	1.1	1.04	- 0.95
<b>0</b> -	0.921	0.933	1.02	1.2	1.07	1.05	1.11	1.11	1.11	- 0.90
N -	0.997	0.991	1.04	1.24	1.17	1.13	1.17	1.16	1.08	- 0.85
<b>00</b> -	1.1	1.05	1.06	1.31	1.19	1.16	1.16	1.27	1.18	
	Ó	1	2	3	4	5	6	7	8	- 0.80

Bx =-0.3	
By = -0.3	

ratio at pixels ( mm1 )												
0 -	0.934	0.881	0.915	0.906	0.102	0.961	0.98	0.978	1.1		1.20	
<b>H</b> -	0.891	0.848	0.957	1.01	1.02	0.999	0.993	1.01	1.03		-1.15	
N -	0.849	0.853	0.972	1.02	1.02	1.08	1.05	1.04	0.974		- 1.10	
M.	0.00153	80.862	0.94	1.01	1	1.02	1	0.974	1.03		- 1.05	
4 -	0.864	0.845	0.954	1	1	1.03	1.06	1.03	1.01		- 1.00	
<b>N</b> -	0.865	0.86	1.01	1.02	1	1.06	1.06	1.07	1.02		- 0.95	
0 -	0.889	0.892	0.975	1.14	1.02	1	1.06	1.05	1.08		- 0.90	
N -	0.941	0.935	0.978	1.16	1.09	1.06	1.09	1.1	1.03		- 0.85	
∞ -	1.05	0.985	0.99	1.22	1.09	1.08	1.09	1.19	1.13			
	0	1	2	2	Δ	5	6	7	8		0.80	

# Back up





Formula

$$\chi^2 = \sum rac{\left(O_i - E_i
ight)^2}{E_i}$$

 $\chi^2$  = chi squared

 $O_i$  = observed value

 $E_i$  = expected value



By = -0.1

Bx = -0.3

				4	Ву				
								Chi^2	
	0.071	0.084							
					(0,0)				•
0.067	0.077	0.09	0.109		0.16				
									Bx
	0.088	0.102			0.169				
	0.104	0.116	0.136	0.158	0.187	0.216	0.254		
					0.203				
					0.227				

						By	<b>L</b>								
					76.67	- 7						C	hi^2		
			5	1.04	60.66		(0,0)						Bx		
		47	.65 5	5.36	64.53	78.69		115.77							
			6	2.41	73.26			122.04							
			7	4.01	83.45	97.7	113.97	135.48	156.37	7 183.5	6	l f(v·k	)		
								146.5					, 	_p	
								164.13							x
													$\gamma 2$		
	Probability Content, p, between $\chi^2$ and + $\infty$														
0.99 5	0.99	0.97 5	0.95	0.9	0.75	0.5	0.25	0.1	0.05	0.02 5	0.01	0.00 5	0.00 2	0.00 1	
38.6	40.6	43.7	46.5	49.9	56.0	63.3	71.2	78.8	83.6	88.0	93.2	96.8	101. 4	104. 7	20

# MM2 behavior

Bx = 0.1 By = -0.3





09/20/22

Bx = -0.1 By = -0.3

ratio at pixels ( mm2 )												
0 -	0.851	0.895	0.945	1.01	0.996	1.05	1.03	1.07	1.02			1.20
н -	0.878	0.907	0.947	0.993	0.996	1.07	1.05	1.01	0.969			1.15
- 7	0.832	0.862	0.963	1.01	0.96	1.04	1.03	1.01	1.03		-	1.10
<b>ω</b> -	0.812	0.892	0.989	0.934	0.945	0.963	1.03	1	1.01		-	1.05
4 -	0.848	0.902	0.958	0.985	1	1.02	1.04	1.02	1.03		-	1.00
- <u>م</u>	0.906	0.902	0.951	1.02	1.07	1.06	1.07	1.06	1.07		-	0.95
9 -	0.88	0.936	0.973	0.985	1.07	1.03	1.07	1.11	1.05		_	0.90
<b>-</b> -	0.875	0.938	0.959	0.976	1.03	1.03	1.05	1.07	1.12		_	0.85
∞ -	0.964	1.01	1.03	1.01	1.07	1.05	1.09	1.05	1.09			
	і 0	1	- 2	, З	4	5	6	י 7	і 8		_	0.80

ratio at pixels ( mm1 )												
0 -	0.903	0.862	0.888	0.877	0.0985	0.93	0.947	0.95	1.07		1.20	
<b>H</b> -	0.871	0.824	0.927	0.981	0.991	0.969	0.969	0.983	1.01		-1.15	
N -	0.834	0.832	0.952	0.992	0.998	1.06	1.03	1.02	0.957		- 1.10	
m	0.00151	L0.852	0.93	0.994	0.99	1.01	0.995	0.963	1.03		- 1.05	
4 -	0.864	0.846	0.955	1	1	1.04	1.06	1.04	1.01		- 1.00	
- CI	0.88	0.871	1.03	1.04	1.02	1.07	1.08	1.09	1.03		- 0.95	
<b>0</b> -	0.907	0.906	1	1.18	1.04	1.03	1.09	1.09	1.09		- 0.90	
<b>^</b>	0.973	0.956	1.01	1.19	1.13	1.09	1.13	1.13	1.06		- 0.85	
∞ -	1.08	1.02	1.02	1.27	1.14	1.12	1.12	1.23	1.15			
	Ó	1	2	3	4	5	6	7	8		- 0.80	

Bx = -0.3 By = -0.1

	ratio at pixels ( mm2 )												
0 -	0.887	0.936	0.969	1.04	1.03	1.08	1.04	1.07	1.01		1.20		
	0.915	0.939	0.973	1.02	1.01	1.08	1.06	1.01	0.953		- 1.15		
- 1	0.866	0.9	0.994	1.02	0.972	1.04	1.03	1.01	1.02		- 1.10		
m -	0.846	0.906	0.999	0.947	0.955	0.967	1.02	0.987	0.981		- 1.05		
4 -	0.867	0.918	0.966	0.992	1	1.03	1.03	0.997	1		- 1.00		
ഹ -	0.918	0.917	0.956	1.02	1.06	1.06	1.05	1.03	1.04		- 0.95		
9 -	0.892	0.946	0.963	0.991	1.06	1.01	1.05	1.07	1.03		- 0.90		
<b>-</b> -	0.891	0.937	0.952	0.962	1.02	1	1.03	1.01	1.1		- 0.85		
∞ -	0.965	1	1.01	1.01	1.04	1.03	1.05	1	1.05		0.00		
	0	1	2	3	4	5	6	7	8		- 0.80		

ratio at pixels ( mm1 )												
0	0.96	0.906	0.93	0.918	0.103	0.958	0.966	0.96	1.07		1.20	
<b>H</b> -	0.916	0.862	0.971	1.02	1.02	0.989	0.974	0.985	0.993		-1.15	
N.	0.876	0.874	0.994	1.03	1.02	1.07	1.02	1.01	0.945		- 1.10	
m	0.00158	80.888	0.967	1.02	1	1.01	0.979	0.938	0.997		- 1.05	
4	0.896	0.87	0.975	1.02	1	1.02	1.03	1	0.977		- 1.00	
ŋ.	0.9	0.887	1.04	1.04	1	1.04	1.04	1.04	0.981		- 0.95	
6	0.918	0.917	1	1.16	1.02	0.99	1.04	1.03	1.04		- 0.90	
<b>N</b>	0.972	0.962	0.994	1.17	1.09	1.04	1.07	1.07	1		- 0.85	
<b>00</b> -	1.08	1.02	1.01	1.23	1.1	1.06	1.06	1.15	1.09			
	Ó	1	2	3	4	5	6	7	8		- 0.80	