# **Product Description**

3M<sup>™</sup> Fasara<sup>™</sup> Glass Finishes are decorative glass and window films available in more than 100 designs. These decorative films can be used in vertical applications in commercial buildings to control both light and privacy through a building's interior glass, including the interior of an outside glass wall (the "Interior Applications"). 3M<sup>™</sup> Fasara<sup>™</sup> Glass Finishes Mat Crystal 2 and 3M<sup>™</sup> Fasara<sup>™</sup> Glass Finishes Milky Crystal are the only products designed for use on exterior glass. When used in exterior applications, the Mat Crystal 2 and Milky Crystal product designs scatter sunlight to reduce reflected light.

## **Product Line**

3M<sup>™</sup> Fasara<sup>™</sup> Glass Finishes, more than 100 different designs, two designs for outdoor decoration only. For available color and pattern see appendix or refer to <u>www.3Mgraphics.com</u>. Please contact the 3M Sales Office for stock available and lead times.

Expected Performance Life is 5 to 20 years for indoor, vertical applications on non-perimeter glass, depending on the design.

## **Characteristics**

These are typical values for unprocessed product. Processing may change the values.

Characteristic	Value								
Material	Polyester								
	Crystal 2 and Milky Crystal contain polyester and PVC								
Design	See "Product Design List". Follow the link to see the product designs of 3M™ Fasara™ Glass Finishes								
Thickness	Designs vary in thickness.								
	With adhesive: 74 μm – 153 μm (0.074 mm – 0.153 mm)								
Adhesive	Acrylic, pressure-sensitive, permanent								
Adhesive Color Appearance	Clear								
Liner	Silicone coated polyester								
	Substrate:	Adhesion:							
Adhesion, Typical Indicative values	Glass	7 N/25 mm							
24 hours after application FTM									
1 24h 23°C / 50% RH Values									
to be checked									
Applied Shrinkage Indicative values FTM 14 Values to be checked	No detectable shrinkage								
		n of the reaction to fire performance according to DIN B-s1, d0 (Except SH2MAOW).							

## **Physical Characteristics**



## **Application Characteristics**

Characteristic	Value
Application Recommendation	Surface type: Flat
	Substrate type: Glass only
	Application Temperature: 53°F – 100°F (12 – 38 °C)
	Application Method: Wet
Temperature Range After	84°F – 176°F (-29°C - +80°C)
Application	84°F – 150°F (-29°C - +65°C) Mat Crystal 2 and Milky Crystal
Electronic Cutting	Not recommended, however, should you wish to electrocute this material 3M would advise:
	Ensure the blades are as always as sharp as possible to reduce the risk of damage to the film edge during cutting.
	Avoid cutting sharp corners as these can tear during the application process.
Removal	Removable with heat and/or chemicals from supported substrate within the Expected Performance Life.
	After removal low adhesive residue is possible.
Shatter Prevention	Fasara <sup>™</sup> film reduces the scattering and falling of broken pieces of glass in the even of glass breakage, and it satisfies the glass scattering prevention capability (A method, B method) according to the JIS A5759 (Japan code).
UV Block	Fasara™ films block at least 99% of the UV light to reduce the discolouring (fading caused by sunlight) of furniture that is mainly caused by UV light. Performance characteristics are based on data deemed reliable.

3M™ Fasara™ Glass Finishes				
Installation Characteristics	Challenging/High Skill			Easy/Low Skill
24-hour adhesion	Low			High
Long term adhesion	Low			High
Removability	Not Designed for Easy Removal			Designed for Easy Removal

# **Warranty Information**

#### **3M Basic Product Warranty**

3M Graphics Products are warranted to be free of defects in materials and manufacture at the time of shipment and to meet the specifications stated in its applicable 3M Graphics Product Bulletin and as further set forth in the 3M Graphics Warranties Bulletin.

## Limited Remedy

#### **Unsuitable End Uses**

This bulletin provides technical information only. Before using, the user must determine the suitability of the product for its required or intended use, and the user assumes all risk and liability whatsoever in connection therewith. As outdoor graphics age, natural weathering occurs causing a gradual reduction in gloss, slight color changes, some lifting of the graphic at the edges or around rivets, and ultimately a minor amount of cracking. These changes are not evidence of product failure and are not covered by a 3M warranty.



Limitations of liability

All questions of warranty and liability relating to this product are governed by the terms and conditions of the sale, subject, where applicable, to the prevailing law.

## Maintenance, Cleaning and Removal

NOTE: Fasara may be cleaned beginning 30 days after installation.

Regular cleaning will help maintain the appearance of the design. Use only clean, nickfree tools and wipe gently only in one direction (do not wipe back and forth). Do not use ammonia, chlorine, or organicbased cleaning products, polishing or cleaning compound, sponges, brushes or electric polishing equipment.

- If there is dust and grit, wipe it off with a soft, damp cloth.
- If it is soiled, but not gritty, use water and a rubber squeegee. Carefully use a rubber squeegee for window glass in particular moving over edges.
- If there is heavier soil, use a mild liquid detergent and water solution, then clear water, and wipe gently with a cloth wipe.

Fasara is removable with heat and/or chemicals from supported substrate within the Expected Performance Life.

After removal low adhesive residue is possible.

## **LEED®v4** Credits

The products can contribute to credits under LEED®v4. Please note that each application is different. It is the sole responsibility of the end user to evaluate and determine whether LEED®v4 credits are applicable. Follow the link to the customer information <u>'LEED®v4 credits'</u>

## Shelf Life, Storage and Shipping

The shelf life as defined below remains an indicative and maximum data, subject to many external and noncontrollable factors. It may never be interpreted as warranty.

The shelf life is never more than 2 years from the date of manufacture on the original box. If you process the film, the shelf life is changed to 1 year from the processing date, but not later than the 2-year maximum from the manufacturing date.

Storage conditions: +4°C to +40°C, out of sunlight, original container in clean and dry area.

## **Health and Safety**

When handling any chemical products, read the manufacturer's container labels and the Safety Data Sheets (SDS) for important health, safety and environmental information.

Follow the link to obtain SDS sheets for 3M products on <u>3M.com/SDS</u>.

IMPORTANT! When using any equipment, always follow the manufacturer's instructions for safe operation.

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# **Optical Performance Characteristics and Warranty of all Product Designs**

					Solar Heat		at	Visible Light			UV		Warranty (vertical only)	
Series	Product	Product Number	Film Thickness [µm] (Excluding liner)	G-value Solar Heat Gain Coefficient	Reflectance [%]	Transmittance [%]	Absorbance [%]	Reflectance [%]	Transmittance [%]	Transmittance [%]	U-value Heat Transmission Coefficient [W/m^2 ⋅ K]	Interior [years]	Interior with UV light [years]	Exterior [years]
	Lattice	SH2FGLT	84	0,53	22	41	37	28	36	0,0	6,0	5	3	0
	Lattice g	SH2FGLT-G	79	0,69	13	62	26	14	60	0,0	6,0	5	3	0
ē	Leise	SH2FGLS	81	0,83	9	81	11	9	88	0,0	6,1	5	3	0
Borde	Paracell	SH2FGPR	80	0,62	17	53	30	20	50	0,0	6,0	5	3	0
	Pixela	SH2FGPX	81	0,68	16	62	22	18	60	0,0	6,0	5	3	0
	Slat	SH2FGSL	88	0,53	22	41	37	28	36	0,0	6,0	5	3	0
	Slatg	SH2FGSL-G	83	0,67	14	58	28	16	56	0,0	6,0	5	3	0
	Astral Silver	SH2CSAS	82	0,37	44	28	28	51	30	0,0	5,8	5	3	0
	Aura 9	SH2PCA9	81	0,84	8	89	3	8	87	0,0	6,0	5	3	0
-	Kanon	SH2FGKN	79	0,77	13	73	14	14	78	0,0	6,0	5	3	0
Prism	Luna 6	SH2PCL6	76	0,59	17	48	34	22	46	0,0	6,0	5	3	0
Dot/I	Luna 9 Priam Noir	SH2PCL9 SH2CSPN	83 79	0,55	19 7	43	39	24	39 42	0,0	6,0	5	3	0
	Prism Noir		78	0,58	7	42	51	7	42	0,0	6,1	5	3	
	Prism Silver Shizuku	SH2CSPS	78	0,56	28 13	49 68	24 19	31 16	53 71	0,0 0,0	5,9 6,0	5 5	э 3	0
	Vista	SH2FGSK SH2FGVI	81 81	0,73 0,72	15	67	13	17	72	0,0	6,0	5	3	0
	Cross Hairline matte	SH2CHMA	126	0,72	8	81	10	9	90	0,0	6,1	3	1	0
	Cross Hairline matte blue gray	SH2CHMAB	120	0,84	7	62	32	7	50 61	0,0	6,1	3	1	0
	Cross Hairline matte light gray	SH2CHMAL	126	0,68	6	55	39	6	51	0,0	6,1	3	1	0
ss	Cross Hairline milky	SH2CHML	125	0,45	29	31	40	39	26	0,0	6,2	3	1	0
Embos	Cross Hairline surce	SH2CHSC	123	0,40	15	58	28	19	57	0,0	6,2	3	1	0
ш	Hairline matte	SH2HLMA	126	0,84	8	81	11	10	90	0,0	6,1	3	1	0
	Mosaic matte	SH2SMMA	125	0,84	8	81	11	9	88	0,0	6,1	3	1	0
	Wave matte	SH2LWMA	128	0,84	8	81	12	8	90	0,0	6,2	3	1	0
	Altair	SH2FGAT	86	0,67	17	60	22	23	60	0,0	6,1	5	3	0
	Buckram	SH2FGBU	79	0,75	12	69	19	14	69	0,0	6,1	3	1	0
	Buckram pearl + gray	SH2FGBUG	77	0,66	11	55	34	12	55	0,0	6,1	3	1	0
	Burlap	SH2FGBL	75	0,66	15	57	28	20	57	0,0	6,1	3	1	0
	Burlap champagne gold	SH2CSBLC	79	0,62	23	56	21	26	56	0,0	5,9	3	1	0
	Canvas	SH2FGCV	77	0,58	21	47	33	28	47	0,0	6,1	3	1	0
	Canvas champagne gold	SH2CSCVC	78	0,65	25	61	14	29	61	0,0	5,9	з	1	0
	Grain champagne gold	SH2CSGC	78	0,68	22	64	14	24	64	0,0	5,8	3	1	0
	Grain silver	SH2CSGS	76	0,66	29	64	7	33	64	0,0	5,9	3	1	0
	Kenun	SH2PTKU	97	0,61	21	53	26	28	51	0,0	6,2	5	з	0
Fabric	Linen	SH2FGLN	78	0,69	17	64	19	23	65	0,0	6,1	5	3	0
ш. Ш.	Linen Crystal	SH2LNCR	81	0,70	13	62	25	17	63	0,0	6,2	5	3	0
	Rikyu	SH2PTRK	103	0,75	7	67	26	8	72	0,0	6,0	5	3	0
	Safu	SH2PTSF	95	0,63	20	54	26	27	54	0,0	6,2	5	3	0
	Sagano	SH2PTSA2	89	0,72	14	66	20	18	68	0,0	6,1	5	3	0
	Sensai Linen	SH2FGSE	74	0,65	16	56	28	21	56	0,0	6,1	3	1	0
	Sensai Linen champagne gold	SH2CSSEC	79	0,67	22	63	15	25	63	0,0	5,9	3	1	0
	Vega	SH2FGVG	86	0,67	16	60	24	21	60	0,0	6,1	5	3	0
	Weave pearl	SH2EMWP	90	0,73	12	66	22	15	66	0,0	6,2	3	1	0
	Weave pearl + dark gray	SH2EMWG	94	0,63	10	50	40	10	50	0,0	6,1	3	1	0
	Yama to	SH2PTYA	89	0,78	12	74	14	15	79	0,0	6,1	5	3	0
	Chamonix	SH2EMCH	120	0,58	26	51	23	35	47	0,0	6,1	5	3	0
	Cielo	SH2FGCE	81	0,65	19	58	23	26	56	0,0	6,0	5	3	0
Matte	Essen	SH2EMES	120	0,58	23	50	27	26	55	0,1	6,1	5	3	0
N	Fine Crystal	SH2FNCR	113	0,82	8	78	14	9	84	0,1	6,1	5	3	0
Frost	Glace	SH2MAGL	85	0,67	14	58	28	18	56	0,0	6,1	5	3	0
	Lausanne	SH2EMLA	113	0,82	8	78	14	9	84	0,1	6,1	5	3	0
	Luce	SH2FGLU	85	0,51	23	39	38	31	34	0,0	6,1	5	3	0



# 3M<sup>™</sup> Fasara<sup>™</sup> Glass Finishes

No.     No. <th></th> <th></th> <th></th> <th></th> <th></th> <th colspan="2">Solar Heat</th> <th colspan="2">t Visible Light</th> <th colspan="2">t UV</th> <th colspan="3">Warranty (vertical only)</th>						Solar Heat		t Visible Light		t UV		Warranty (vertical only)			
Match     Match <th< td=""><td>Series</td><td>Product</td><td>Product Number</td><td>Film Thickness [µm] (Excluding liner)</td><td>G-value Solar Heat Gain Coefficient</td><td>Reflectance [%]</td><td>Transmittance [%]</td><td>Absorbance [%]</td><td>Reflectance [%]</td><td>Transmittance [%]</td><td>Transmittance [%]</td><td>U-value Heat Transmission Coefficient [W/m^2 ⋅ K]</td><td></td><td></td><td></td></th<>	Series	Product	Product Number	Film Thickness [µm] (Excluding liner)	G-value Solar Heat Gain Coefficient	Reflectance [%]	Transmittance [%]	Absorbance [%]	Reflectance [%]	Transmittance [%]	Transmittance [%]	U-value Heat Transmission Coefficient [W/m^2 ⋅ K]			
Mate Crystal i     Bital Actar.     Bital Actar		Mare	SH2FGMR	90	0,79	9	74	18	10	78	0,0	6,1	5	3	0
Mail     Mail <th< td=""><td></td><td>Matte Crystal 2</td><td>SH2MACRX2</td><td>126</td><td>0,83</td><td>7</td><td>79</td><td>14</td><td>8</td><td>86</td><td>0,2</td><td>6,2</td><td>3</td><td>3</td><td>3</td></th<>		Matte Crystal 2	SH2MACRX2	126	0,83	7	79	14	8	86	0,2	6,2	3	3	3
Marky Mainy     SHAMAMA     TO     Ga     SA     SA <thsa< th="">     SA    SA</thsa<>		Matte Crystal i	SH2MACR-I	95	0,82	8	78	14	9	85	0,1	6,1	5	3	0
Non-control     SH2MACW     19     0    0 <	tte	Milky Crystal	SH2MLCRX	126	0,35	31	18	51	42	19	0,0	6,2	з	3	з
Non-control     SH2MACW     19     0    0 <	/ Ma	Milky Milky	SH2MAMM	105	0,38	34	25	41	43	21	0,0	6,1	5	3	0
Originational     Symbol	rost	MilkyWhite	SH2MAML	77	0,65	17	57	26	21	59	0,0	6,0	5	3	0
Odd     Shi2EMOS     Tip     Q,Q0     Tip     Q,Q0     Tip     Q,Q0     Tip     Q,Q0	Ē	Opaque Black	SH2BKOP	79	0,34	5	1	94	5	0	0,0	6,1	2	0	0
Reflect Silver 1     RESIAR     7.4     0.07     7.8     0.4     9.1     0.1     0.0     0.00     0.50     0.50     0.5     0.1     0.1       Alm Musi-reflect     SH20SC     7.76     0.60     16     58     00     20     05     1.0     0.0     0.1     <		Opaque White	SH2MAOW	142	0,26	46	13	41	57	10	0,0	6,0	5	3	0
ChainMenhenteet     SH2SICMR     7/2     0,0     5/5     3/0     2/0     5/5     3/0     5/5		Oslo	SH2EMOS	119	0,80	8	76	16	9	83	0,1	6,1	5	з	0
Cutclass     SH2CSC     7.6     0.68     16     5.8     2.0     5.8     0.1     6.11     3.1     1       Cutclass speart     SH2CSCP     7.7     0.65     26     46     20     0.6     1.1     0.0     0.0     0.1     3.1     1     0       Cutclass silver     SH2CSCP     7.7     0.65     26     40     20     5.0     0.0     0.0     0.0     0.1     0.0     0		Reflect (Silver 1)	RE1SIAR	74	0,07	78	0	21	91	0	(0,0)	5,9	5	з	0
Order     Curclains giver     SH2CSCP     77     0.65     28     46     27     30     46     0.0     6.0.     31     1     0       Curclains silver     SH25COD     77     0.55     28     46     27     30     46     0.0     6.0.     33     1     0       Crid Clains silver     SH25COD     79     0.63     18     52     20     30     60     0.0     6.0.     5.3     1     0       Crid Clains silver     SH25COR     70     0.7     17     0.9     18     73     0.0     6.0.     5.3     1     0     0     7.1     0.0     10     10     0.0     6.0     1.1     0     0.0     6.0     1.1     0.0     6.0     1.1     0     0     0.0     1.1     0.0     1.1     0.0     1.1     0     0.1     0.1     0.1     0.1     0.1     0.1     0.1     0.1     0.1     0.1     0.1     0.1     0.1 <td></td> <td>Chain Mesh reflect</td> <td>SH2SICMR</td> <td>76</td> <td>0,40</td> <td>51</td> <td>36</td> <td>14</td> <td>59</td> <td>36</td> <td>0,0</td> <td>5,9</td> <td>3</td> <td>1</td> <td>0</td>		Chain Mesh reflect	SH2SICMR	76	0,40	51	36	14	59	36	0,0	5,9	3	1	0
Gria     SH2GGD     78     0,83     18     63     29     23     50     0,0     0,1     3     1     0       Arifor effect     SH2GAR     70     0,70     12     7.6     13     13     70     0,0     0,0     0,0     0,0     1     7.6     13     13     70     0,0     0,0     0,0     1     7.6     10     10     0,0     0,0     0,0     0,0     1     1     0       Cloud     SH2FGAR     70     0,31     60     16     10     0,0     0,0     0,0     0,0     0,0     1     1     0       Damond clotter effect     SH2SIDAR     77     0,38     60     31     70     0,7	U	Cut Glass	SH2CSC	76	0,65	15	55	30	20	55	0,1	6,1	3	1	0
Gria     SH2GGD     78     0,83     18     63     29     23     50     0,0     0,1     3     1     0       Arifor effect     SH2GAR     70     0,70     12     7.6     13     13     70     0,0     0,0     0,0     0,0     1     7.6     13     13     70     0,0     0,0     0,0     1     7.6     10     10     0,0     0,0     0,0     0,0     1     1     0       Cloud     SH2FGAR     70     0,31     60     16     10     0,0     0,0     0,0     0,0     0,0     1     1     0       Damond clotter effect     SH2SIDAR     77     0,38     60     31     70     0,7	netri	Cut Glass pearl	SH2CSCP	78	0,66	16	58	26	18	58	0,1	6,1	3	1	0
Gria     SH2GGD     78     0,83     18     63     29     23     50     0,0     0,1     3     1     0       Arifor effect     SH2GAR     70     0,70     12     7.6     13     13     70     0,0     0,0     0,0     0,0     1     7.6     13     13     70     0,0     0,0     0,0     1     7.6     10     10     0,0     0,0     0,0     0,0     1     1     0       Cloud     SH2FGAR     70     0,31     60     16     10     0,0     0,0     0,0     0,0     0,0     1     1     0       Damond clotter effect     SH2SIDAR     77     0,38     60     31     70     0,7	Geon	Cut Glass silver	SH2CSCS	77	0,55	26	46	27	30	46	0,0	6,0	3	1	0
Acrina     SH2*GAR     8H     0,79     12     76     13     13     70     0.0     0,00     5.     3     0       Cload     SH2*GCL     90     0,76     11     70     10     13     73     0,1     6,20     5.8     3     1     0       Damond Chort reflect     SH2*GDR     77     0,31     60     27     14     89     20     5.8     0.0     5.6     3     1     0       Damond ceflect     SH2*GIM     787     0,48     60     17     60,48     7     68     13     20     51     0,0     6,0     5     3     0     10       Humina Back     SH2*GIM-4     81     0,72     13     68     16     40     48     0,1     6,0     5     3     0     10     10     10     13     10     10     13     0,0     6,0     5     3     0     10     10     10     10     10     10	Ŭ	Grid	SH2FGGD	79	0,63	18	53	29	23	53	0,0	6,1	з	1	0
Cloud     SH2*GCL     90     0,76     11     70     19     13     73     0.1     6.2     5     3     0       Diamond     SH2*GDM     800     0,67     16     88     20     58     0.0     6,11     3     1     0       Diamond Chost reflect     SH2SDCR     77     0,38     60     27     14     69     27     60     5,0     5,0     5     3     0     1     0       Diamond Chost reflect     SH2SIM     77     0,38     60     33     17     50     36     0.0     6,0     5     3     0       Hurnia     SH2*GIM     83     0,02     160     <		Grid reflect	SH2SIGDR	76	0,61	25	55	20	30	55	0,0	6,0	3	1	0
Diamond     SH2FCDM     80     0.67     16     58     20     58     0.0     6.1     3     1     0       Diamond Chostreflect     SH2SIDCR     77     0.04     37     43     20     43     43     0.0     5.8     3     1     0       Diamond Chostreflect     SH2SIDR     77     0.04     37     43     20     43     43     0.0     5.8     3     1     0       Diamond Chostreflect     SH2SIDR     77     0.04     37     43     20     43     43     0.0     6.0     3     1     0     0     1     16     16     13     14     10     6.0		Aerina	SH2FGAR	81	0,79	12	76	13	13	79	0,0	6,0	5	з	0
Diamond Choxtereflect     SH2SIDCR     777     0,31     60     27     14     69     27     0,0     5,8     3     1     0       Diamond reflect     SH2SIDR     777     0,04     37     43     20     43     43     0.0     6,0     5,3     3     0       Humina Reflect (IlluminaSilver)     SH2GIM     779     0,48     50     33     17     59     36     0,0     6,00     5,0     3     0		Cloud	SH2FGCL	90	0,76	11	70	19	13	73	0,1	6,2	5	3	0
Diamond reflect     SH2SIDR     77     0,49     37     44     20     43     43     0.0     6.0     3     1     0       Ithmina Reflect (ilturnina Silver)     SH2SIIM     77     0,38     50     33     17     59     36     0.0     5.9     5     3     0       Ithmina Back     SH2FGIM     83     0,62     16     53     31     20     50     0.0     6.0     6.0     6.0     6.0     6.0     7     3     0       Ithmina Back     SH2EKIM-0     81     0.2     30     14     6.0     0.0     6.0     5     3     0       Ithmina Siley     SH25KIM-0     78     0,61     20     57     14     36     0.0     6.0     6.0     5     3     0		Diamond	SH2FGDM	80	0,67	16	58	26	20	58	0,0	6,1	з	1	0
Illmina Reflect (Illumina Silver)     SH2SIIM     77     0,98     50     33     17     58     38     0.0     5.9     5     3     0       Illumina     SH2FGIM     83     0,02     16     53     31     20     51     0.0     6.0     5     3     0       Illumina Glack     SH2BGIM     79     0,45     6     19     75     60     20     0.0     6.00     6.00     6.0     5     3     0       Illumina Silve/S     SH2SGIM     78     0,67     32     57     23     61     40     48     0.1     6.00     5     3     0       Illumina Silve/W     SH2SGIM     78     0,61     50     10     57     23     22     61     0.0     6.0     3     0     0     5     3     0     0     5     3     0     5     3     0     5     3     0     5     3     0     5     3     0		Diamond Ghost reflect	SH2SIDGR	77	0,31	60	27	14	69	27	0,0	5,8	з	1	0
Illumina     SH2FGIM     83     0,62     15     53     31     20     51     0,0     6,0     5     3     0       Illumina Black     SH28KIM     79     0,45     6     19     75     6     20     0.0     6,00     5.0     3     0       Illumina Slex     SH28KIM-S     78     0,67     32     53     16     40     48     0.1     6,00     5.0     3     0       Illumina Slexy     SH28SIM-W     78     0,67     23     22     61     0.0     6,00     5.0     3     0       Indica     SH2FGIB     85     0,51     23     32     28     0.0     6,00     5.0     3     0       Starina     SH2FGIB     85     0,51     23     39     38     31     40     0.0     6,01     5.0     3     0     5.0     30     35     0.0     6,11     5.0     3     10       Ventian     SH2FGRB		Diamond reflect	SH2SIDR	77	0,49	37	43	20	43	43	0,0	6,0	3	1	0
Matrix     SH22KIM     7.9     0.45     6     19     7.5     6     2.0     0.6,0     2.0     0.0       Humina g     SH2FGM-C     81     0,72     13     68     21     14     68     0,0     6,00     5.0     3     0       Humina Siley S     SH25SM-S     7.8     0,67     32     53     16     40     48     0,1     6,00     5.0     3     0       Humina Siley W     SH25GM     78     0,61     29     57     7.4     36     50     0.0     6,00     5.0     3     0       Sabrina     SH2FGB     800     0,81     29     50     14     10     83     0.0     6,01     5.0     3     0     0     0.1     5.0     3     0.0     6,01     5.0     3     0     0     0.0     6,01     5.0     4.0     0.0     6,02     3     1     0     0     0.0     0.0     0.0     0.0     0.0 <td></td> <td>Illmina Reflect (Illumina Silver)</td> <td>SH2SIIM</td> <td>77</td> <td>0,38</td> <td>50</td> <td>33</td> <td>17</td> <td>59</td> <td>36</td> <td>0,0</td> <td>5,9</td> <td>5</td> <td>3</td> <td>0</td>		Illmina Reflect (Illumina Silver)	SH2SIIM	77	0,38	50	33	17	59	36	0,0	5,9	5	3	0
Illumina Siky S     SH2SSIM-S     78     0,67     92     53     16     40     48     0,1     6,01     5     3     0       Illumina Siky W     SH2SSIM-W     78     0,61     20     57     14     36     64     0.0     6.0     6.0     5     3     0       Robe     SH2FGR     816     0,61     0.61     9     38     30     35     0.0     6,01     5     3     0       Torugi     SH2FGR     810     0,61     10     58     12     12     54     0.0     6,01     5     3     0       Torugi     SH2FGV     816     0,63     18     58     12     12     54     0.0     6,01     10     0     0     10		Illumina	SH2FGIM	83	0,62	16	53	31	20	51	0,0	6,0	5	3	0
Illumina Siky S     SH2SSIM-S     78     0,67     92     53     16     40     48     0,1     6,01     5     3     0       Illumina Siky W     SH2SSIM-W     78     0,61     20     57     14     36     64     0.0     6.0     6.0     5     3     0       Robe     SH2FGR     816     0,61     0.61     9     38     30     35     0.0     6,01     5     3     0       Torugi     SH2FGR     810     0,61     10     58     12     12     54     0.0     6,01     5     3     0       Torugi     SH2FGV     816     0,63     18     58     12     12     54     0.0     6,01     10     0     0     10	ation	Illumina Black	SH2BKIM	79	0,45	6	19	75	6	20	0,0	6,0	2	0	0
Illumina Silky S     SH2SSIM-S     78     0,67     92     53     16     40     48     0,1     6,0     5     3     0       Illumina Silky W     SH2SSIM-W     78     0,61     29     57     14     36     64     0     6,00     6,0     5     3     0       Robe     SH2FGR     81     0,64     20     57     23     24     61     0,0     6,0     5     3     0       Shbin     SH2FGR     810     0,61     15     58     12     14     31     0,0     6,1     5     3     0       Turugi     SH2FGR     81     0,63     18     55     27     23     54     0,0     6,1     5     3     10     0     0     10 <td< td=""><td>Grade</td><td>Illumina g</td><td>SH2FGIM-G</td><td>81</td><td>0,72</td><td>13</td><td>66</td><td>21</td><td>14</td><td>66</td><td>0,0</td><td>6,0</td><td>5</td><td>з</td><td>0</td></td<>	Grade	Illumina g	SH2FGIM-G	81	0,72	13	66	21	14	66	0,0	6,0	5	з	0
		Illumina Silky S	SH2SSIM-S	78	0,57	32	53	16	40	48	0,1	6,0	5	з	0
RobeSH2FGRB650,5123993831350,06,115930SabrinaSH2FGRB900,819771410830,06,115330TsurgiSH2FGTG810,6519582321610,06,0155330VenetanSH2FGVN850,6318552723540,06,1155330Fost WalnutSH2PTFW840,848880129870,16,223310PyrgosSH2PTFW840,841880129870,16,223310ArpaSH2PTFW880,5719453625430,06,223310PyrgosSH2PTFW880,5719453625430,06,223310ArpaSH2FGRP790,6717612284706,63570,06,1253330Arpa SH2FGN8120,6813592817580,06,1153340Arpa BlackSH2FGR760,7413592817580,06,1153340Fine StringSH2FGFN810,58171281<		Illumina Silky W	SH2SSIM-W	78	0,61	29	57	14	36	54	0,1	6,0	5	3	0
SabrinaSH2FGSB900,819771410830,06,1590TsurugiSH2FGTG810,6519582321610,06,0530VenetianSH2FGYD850,6318552723540,06,1530Fost WalnutSH2PTFW840,848880129870,16,22310PyrgosSH2PTFWS870,65750437480,06,62310ArpaSH2PTFWS880,5719453625430,06,22310ArpaSH2FGSW900,6714572918570,06,22310Arpa SH2FGAP790,6717612222670,16,0530Arpa BlackSH2PGFN810,47825678206,1530Fine StringSH2FGFN810,56274830606,1310NoktoSH2CSFP780,6816602427480,06,1310Fine StringSH2CSFP780,6816602421600,16,130		Lontano	SH2FGLO	81	0,64	20	57	23	22	61	0,0	6,0	5	3	0
TsurugiSH2FGTG8H0,65195B2321610,060,055930VenctianSH2FGVN850,6318552723540,061,153930Frost WalnutSH2PTFW840,840,84800129870,166,233110Frost Walnut smokeSH2PTFWS870,65750437480,066,233110ProsoSH2PTFWS8770,65719453625430,066,233110Straight WashiSH2FGW900,67714572918570,066,2330110ArpaSH2FGMSH2FGW900,67714572918570,066,23300Arpa BlackSH2FGNSH2FGN810,477825678220,06,1151340Fine StringSH2FGFN810,68130,5812463227480,06,0131<0Fine StringSH2CSPN780,6816602421600,16,1130,10RadiusSH2CSPN780,6816502416300,06,0130,3		Robe	SH2FGRB	85	0,51	23	39	38	31	35	0,0	6,1	5	3	0
VenetianSH2FGVN850,6318552723540,06,1599Fost WalnutSH2PTW840,84880129870,16,223310Fost Walnut smokeSH2PTWS870,65750437480,06,223310ProsoSH2PTG880,5719453625430,06,22310Straight WashiSH2PGW9000,6714572918570,06,22310ArpaSH2FGW9100,6714572918570,06,223101Arpa flackSH2FGW9100,6714572918570,06,615310Arpa CrystalSH2FGAP7900,6717612222670,16,006,11530Fine CrystalSH2PGN8110,478113582817580,06,0151310NoktoSH2PGN8110,681359281816600,06,11310Pine CrystalSH2PGN8110,681359281816606,06,013310Reating PartingSH2PGN <td></td> <td>Sabrina</td> <td>SH2FGSB</td> <td>90</td> <td>0,81</td> <td>9</td> <td>77</td> <td>14</td> <td>10</td> <td>83</td> <td>0,0</td> <td>6,1</td> <td>5</td> <td>з</td> <td>0</td>		Sabrina	SH2FGSB	90	0,81	9	77	14	10	83	0,0	6,1	5	з	0
Frost Walnut     SH2PTFW     84     0,84     8     80     12     9     87     0,1     6,2     3     1     0       Frost Walnut smoke     SH2PTFWS     87     0,65     7     50     43     7     48     0,0     6,2     3     1     0       Pyrgos     SH2PTPG     88     0,57     19     45     36     25     43     0,0     6,2     3     1     0       Straight Washi     SH2FGSW     90     0,67     14     57     29     18     57     0,0     6,2     3     1     0       Arpa     Black     SH2FGAP     79     0,67     17     61     22     22     67     0,1     6,0     5     3     0       Arpa Black     SH2PGAP     81     0,47     8     25     67     8     22     0,0     6,1     3     1     0       Fine String     SH2PGFN     81     0,68     13     59		Tsurugi	SH2FGTG	81	0,65	19	58	23	21	61	0,0	6,0	5	з	0
Frost Walnut smokeSH2PTFWS870,65750437480,06.2310PyrgosSH2PTG880,5719453625430,06.2310Straight WashiSH2FGSW900,6714572918570,06.2310ArpaSH2FGAP790,67176122670,16,00530Arpa BlackSH2BKAP810,47825678220,06,11530Fine StringSH2FGFN810,6813592817580,06,22530Fine StringSH2FGFN810,5622463227480,06,113310Fine StringSH2FGFN810,5622463227480,06,11310NoktoSH2CSFN760,7413691816690,06,11310RatiusSH2CSFN810,3377867630,06,11310RatiusSH2CSFN810,3577867630,06,11530RatiusSH2CSFN810,7413632416 <td></td> <td>Venetian</td> <td>SH2FGVN</td> <td>85</td> <td>0,63</td> <td>18</td> <td>55</td> <td>27</td> <td>23</td> <td>54</td> <td>0,0</td> <td>6,1</td> <td>5</td> <td>3</td> <td>0</td>		Venetian	SH2FGVN	85	0,63	18	55	27	23	54	0,0	6,1	5	3	0
Pyrgos     SH2PTPG     88     0,57     19     45     36     25     43     0,0     6,2     3     1     0       Straight Washi     SH2FGSW     90     0,67     14     57     29     18     57     0,0     6,2     3     1     0       Arpa Mach     SH2FGAP     79     0,67     17     61     22     22     67     0,1     6,0     5     3     0       Arpa Black     SH2BKAP     81     0,47     8     25     67     8     22     0,0     6,1     5     3     0       Arpa Crystal     SH2PCR     81     0,68     13     59     28     17     58     0,0     6,0     5     3     0       Fine String     SH2PTFS     76     0,74     13     69     18     16     69     0,0     6,1     3     1     0       Nokto     SH2CSNK     81     0,39     7     12     81     <		Frost Walnut	SH2PTFW	84	0,84	8	80	12	9	87	0,1	6,2	3	1	0
Straight Washi     SH2FGSW     90     0,67     14     57     29     18     57     0,0     6,2     3     1     0       Arpa     SH2FGAP     79     0,67     17     61     22     22     67     0,1     6,00     5     3     0       Arpa Black     SH2BKAP     81     0,47     8     25     67     8     22     0,0     6,11     5     3     0       Arpa Crystal     SH2PGR     81     0,68     13     59     28     17     58     0,0     6,01     5     3     0       Fine Crystal     SH2PGR     81     0,56     22     46     32     27     48     0,0     6,01     5     3     0       Fine String     SH2PGR     76     0,74     13     69     18     16     69     0,0     6,11     3     1     0       Fine String pearl     SH2CSFP     78     0,68     16     60	Iral	Frost Walnut smoke	SH2PTFWS	87	0,65	7	50	43	7	48	0,0	6,2	3	1	0
Arpa     SH2FGAP     79     0,67     17     61     22     22     67     0,1     6,0     5     3     0       Arpa Black     SH2BKAP     81     0,47     8     25     67     8     22     0,0     6,1     5     3     0       Arpa Black     SH2BKAP     81     0,68     13     59     28     17     58     0,0     6,1     5     3     0       Fine Crystal     SH2PGFN     81     0,56     22     46     32     27     48     0,0     6,0     5     3     0       Fine String     SH2PTFS     76     0,74     13     69     18     16     69     0,0     6,1     3     1     0       Nokto     SH2CSNK     81     0,39     7     12     81     7     13     0,0     6,0     5     3     0       Radius     SH2CSN     81     0,37     7     86     7     6	Natı	Pyrgos	SH2PTPG	88	0,57	19	45	36	25	43	0,0	6,2	3	1	0
Arpa Black     SH2BKAP     81     0,47     8     25     67     8     22     0,0     6,1     5     3     0       Arpa Crystal     SH2APCR     81     0,68     13     59     28     17     58     0,0     6,1     5     3     0       Fine     SH2PGR     81     0,56     22     46     32     27     48     0,0     6,1     3     1     00       Fine String     SH2PTFS     76     0,74     13     69     18     16     69     0,0     6,1     3     1     00       Fusion pearl     SH2CSFP     78     0,68     16     60     24     21     60     0,1     6,1     3     1     00     6,0     5     3     0       Nokto     SH2CSRV     81     0,35     7     7     86     7     6     0,0     6,01     5     3     0       Satari     SH2CSRV     81     0,74 <td></td> <td>Straight Washi</td> <td>SH2FGSW</td> <td>90</td> <td>0,67</td> <td>14</td> <td>57</td> <td>29</td> <td>18</td> <td>57</td> <td>0,0</td> <td>6,2</td> <td>з</td> <td>1</td> <td>0</td>		Straight Washi	SH2FGSW	90	0,67	14	57	29	18	57	0,0	6,2	з	1	0
Arpa Crystal     SH2APCR     81     0,68     13     59     28     17     58     0,0     6,2     5     3     0       Fine     SH2FGFN     81     0,56     22     46     32     27     48     0,0     6,0     5     3     0       Fine String     SH2FGFN     81     0,56     16     60     24     21     60     0,1     6,1     3     1     00       Fusion pearl     SH2CSFP     78     0,68     16     60     24     21     60     0,1     6,1     3     1     00       Nokto     SH2CSRV     81     0,39     7     12     81     7     6     0,0     6,0     5     3     0       Radius     SH2CSRV     81     0,37     7     86     7     6     0,0     6,0     5     3     0       Safari     SH2CSRV     81     0,71     13     63     24     16     630		Arpa	SH2FGAP	79	0,67	17	61	22	22	67	0,1	6,0	5	3	0
Fine     SH2FGFN     81     0,56     22     46     32     27     48     0,0     6,0     5     3     0       Fine String     SH2PTFS     76     0,74     13     69     18     16     69     0,0     6,1     3     1     0       Fusion pearl     SH2CSFP     78     0,68     16     60     24     21     60     0,1     6,0     5     3     0       Nokto     SH2CSNK     81     0,39     7     12     81     7     13     0,0     6,0     5     3     0       Radius     SH2CSNK     81     0,35     7     7     86     7     6     0,0     6,0     5     3     0       Safari     SH2CST     81     0,74     13     63     24     16     63     0,0     6,1     5     3     0       Seattle Fine     SH2CGST     81     0,74     16     71     13     25		Arpa Black	SH2BKAP	81	0,47	8	25	67	8	22	0,0	6,1	5	3	0
Fine String     SH2PTFS     76     0,74     13     69     18     16     69     0,0     6,1     3     1     0       Fusion pearl     SH2CSFP     78     0,68     16     60     24     21     60     0,1     6,1     3     1     0       Nokto     SH2CSNK     81     0,39     7     12     81     7     13     0,0     6,0     5     3     0       Radius     SH2CSNC     81     0,35     7     7     86     7     6     0,0     6,0     5     3     0       Safari     SH2CSRC     81     0,74     13     63     24     16     63     0,0     6,1     5     3     0       Seattle     Fine     SH2DGST     81     0,74     16     71     13     25     68     0,0     6,1     5     3     0       Seattle Fine     SH2DGST     81     0,67     17     60     24 <td></td> <td>Arpa Crystal</td> <td>SH2APCR</td> <td>81</td> <td>0,68</td> <td>13</td> <td>59</td> <td>28</td> <td>17</td> <td>58</td> <td>0,0</td> <td>6,2</td> <td>5</td> <td>3</td> <td>0</td>		Arpa Crystal	SH2APCR	81	0,68	13	59	28	17	58	0,0	6,2	5	3	0
Fusion pearl     SH2CSFP     78     0,68     16     60     24     21     60     0,1     6,1     3     1     0       Nokto     SH2CSNK     81     0,39     7     12     81     7     13     0,0     6,1     3     1     0       Radius     SH2CSNK     81     0,39     7     7     86     7     6     0,0     6,0     5     3     0       Safari     SH2CSN     81     0,71     13     63     24     16     63     0,0     6,0     5     3     0       Seattle     SH2CSST     81     0,74     16     70     14     22     74     0,0     6,1     5     3     0       Seattle Fine     SH2CST-F     80     0,74     16     71     13     25     68     0,0     6,1     5     3     0       Shute     SH2CST-F     81     0,67     17     60     24     22		Fine	SH2FGFN	81	0,56	22	46	32	27	48	0,0	6,0	5	3	0
Nokto     SH2CSNK     81     0,39     7     12     81     7     13     0,0     6,0     5     3     0       Radius     SH2CSRD     81     0,35     7     7     86     7     6     0,0     6,0     5     3     0       Safari     SH2CSRD     81     0,71     13     63     24     16     63     0,0     6,0     5     3     0       Seattle     SH2CSRD     81     0,74     16     70     14     22     74     0,0     6,11     5     3     0       Seattle Fine     SH2CST     81     0,74     16     71     13     25     68     0,0     6,11     5     3     0       Shute     SH2CST-F     80     0,77     17     60     24     22     59     0,0     6,11     5     3     0       Shute     SH2CST     81     0,67     17     60     24     22 <t< td=""><td></td><td>Fine String</td><td>SH2PTFS</td><td>76</td><td>0,74</td><td>13</td><td>69</td><td>18</td><td>16</td><td>69</td><td>0,0</td><td>6,1</td><td>3</td><td>1</td><td>0</td></t<>		Fine String	SH2PTFS	76	0,74	13	69	18	16	69	0,0	6,1	3	1	0
Raius     SH2CSRD     81     0,35     7     7     86     7     6     0,0     6,0     5     3     0       Safari     SH2PTSR     85     0,71     13     63     24     16     63     0,0     6,0     5     3     0       Seattle     SH2DGST     81     0,74     16     70     14     22     74     0,0     6,1     5     3     0       Seattle     SH2DGST     81     0,74     16     71     13     25     68     0,0     6,1     5     3     0       Seattle Fine     SH2DGST-F     80     0,74     16     71     13     25     68     0,0     6,1     5     3     0       Shute     SH2GST-F     81     0,67     17     60     24     22     59     0,0     6,1     5     3     0       Shute     Black     SH2BKST     81     0,61     21     53     26	Stripe	Fusion pearl	SH2CSFP	78	0,68	16	60	24	21	60	0,1	6,1	3	1	0
Safari     SH2PTSR     85     0,71     13     63     24     16     63     0,0     6,2     3     1     0       Seattle     SH2DGST     81     0,74     16     70     14     22     74     0,0     6,1     5     3     0       Seattle     SH2DGST     81     0,74     16     71     13     25     68     0,0     6,1     5     3     0       Shute     SH2DGST-F     80     0,67     17     60     24     22     59     0,0     6,1     5     3     0       Shute     Black     SH2BKST     81     0,67     17     60     24     22     59     0,0     6,1     5     3     0       Shute Black     SH2BKST     81     0,61     21     53     26     29     51     0,0     6,1     3     1     0       String Reverse     SH2PTSTR     77     0,76     17     74 <td< td=""><td>Nokto</td><td>SH2CSNK</td><td>81</td><td>0,39</td><td>7</td><td>12</td><td>81</td><td>7</td><td>13</td><td>0,0</td><td>6,0</td><td>5</td><td>3</td><td>0</td></td<>		Nokto	SH2CSNK	81	0,39	7	12	81	7	13	0,0	6,0	5	3	0
Seattle     SH2DGST     81     0,74     16     70     14     22     74     0,0     6,1     5     3     0       Seattle Fine     SH2DGST-F     80     0,74     16     71     13     25     68     0,0     6,1     5     3     0       Shute     SH2PGST     81     0,67     17     60     24     22     59     0,0     6,1     5     3     0       Shute     SH2PGST     81     0,67     17     60     24     22     59     0,0     6,1     5     3     0       Shute Black     SH2BKST     81     0,61     21     53     26     29     51     0,0     6,1     5     3     0       String     SH2PTST     77     0,76     17     74     9     22     74     0,0     6,1     3     1     0       String Reverse     SH2PTSTR     78     0,64     16     54     30 <t< td=""><td>Radius</td><td>SH2CSRD</td><td>81</td><td>0,35</td><td>7</td><td>7</td><td>86</td><td>7</td><td>6</td><td>0,0</td><td>6,0</td><td>5</td><td>3</td><td>0</td></t<>		Radius	SH2CSRD	81	0,35	7	7	86	7	6	0,0	6,0	5	3	0
Seattle Fine     SH2DGST-F     80     0,74     16     71     13     25     68     0,0     6,1     5     3     0       Shutie     SH2FGST     81     0,67     17     60     24     22     59     0,0     6,1     5     3     0       Shutie Black     SH2BKST     81     0,61     21     53     26     29     51     0,0     6,1     5     3     0       String     SH2PTST     77     0,76     17     74     9     22     74     0,0     6,1     5     3     0       String Reverse     SH2PTST     77     0,76     17     74     9     22     74     0,0     6,1     3     1     0		Safari	SH2PTSR	85	0,71	13	63	24	16	63	0,0	6,2	3	1	0
Seattle Fine     SH2DGST-F     80     0,74     16     71     13     25     68     0,0     6,1     5     3     0       Shutie     SH2GST     81     0,67     17     60     24     22     59     0,0     6,1     5     3     0       Shutie     Black     SH2BKST     81     0,61     21     53     26     29     51     0,0     6,1     5     3     0       String     SH2PTST     77     0,76     17     74     9     22     74     0,0     6,1     3     1     0       String Reverse     SH2PTST     78     0,64     16     54     30     21     54     0,0     6,1     3     1     0		Seattle	SH2DGST	81	0,74	16	70	14	22	74	0,0	6,1	5	3	0
Shutie Black     SH2BKST     81     0,61     21     53     26     29     51     0,0     6,1     5     3     0       String     SH2PTST     77     0,76     17     74     9     22     74     0,0     6,1     3     1     0       String Reverse     SH2PTSTR     78     0,64     16     54     30     21     54     0,0     6,1     3     1     0		Seattle Fine	SH2DGST-F	80	0,74	16	71	13	25	68			5	3	0
Shutie Black     SH2BKST     81     0,61     21     53     26     29     51     0,0     6,1     5     3     0       String     SH2PTST     77     0,76     17     74     9     22     74     0,0     6,1     3     1     0       String Reverse     SH2PTSTR     78     0,64     16     54     30     21     54     0,0     6,1     3     1     0		Shutie	SH2FGST	81		17	60	24	22	59	0,0		5	3	0
String     SH2PTST     77     0,76     17     74     9     22     74     0,0     6,1     3     1     0       String Reverse     SH2PTSTR     78     0,64     16     54     30     21     54     0,0     6,1     3     1     0		Shutie Black	SH2BKST	81	0,61	21	53	26	29	51	0,0		5	3	0
String Reverse     SH2PTSTR     78     0,64     16     54     30     21     54     0,0     6,1     3     1     0		String		77		17	74	9	22	74			3	1	0
			SH2PTSTR	78		16	54	30	21	54	0,0	6,1	3	1	0
		Wind	SH2PTWD	88	0,70	11	61	28	13	61	0,0	6,2	3	1	0

