1. What is HD-CCTV

- ## What is HD-CCTV ?

  An HD-CCTV system is a video surveillance system wherein specialized surveillance features defined by official HDcctv alliance for CCTV market is used. ***Video(HDTV) signals are transmitted digitally over conventional CCTV media*** based on standard HD-SDI transmission technology.
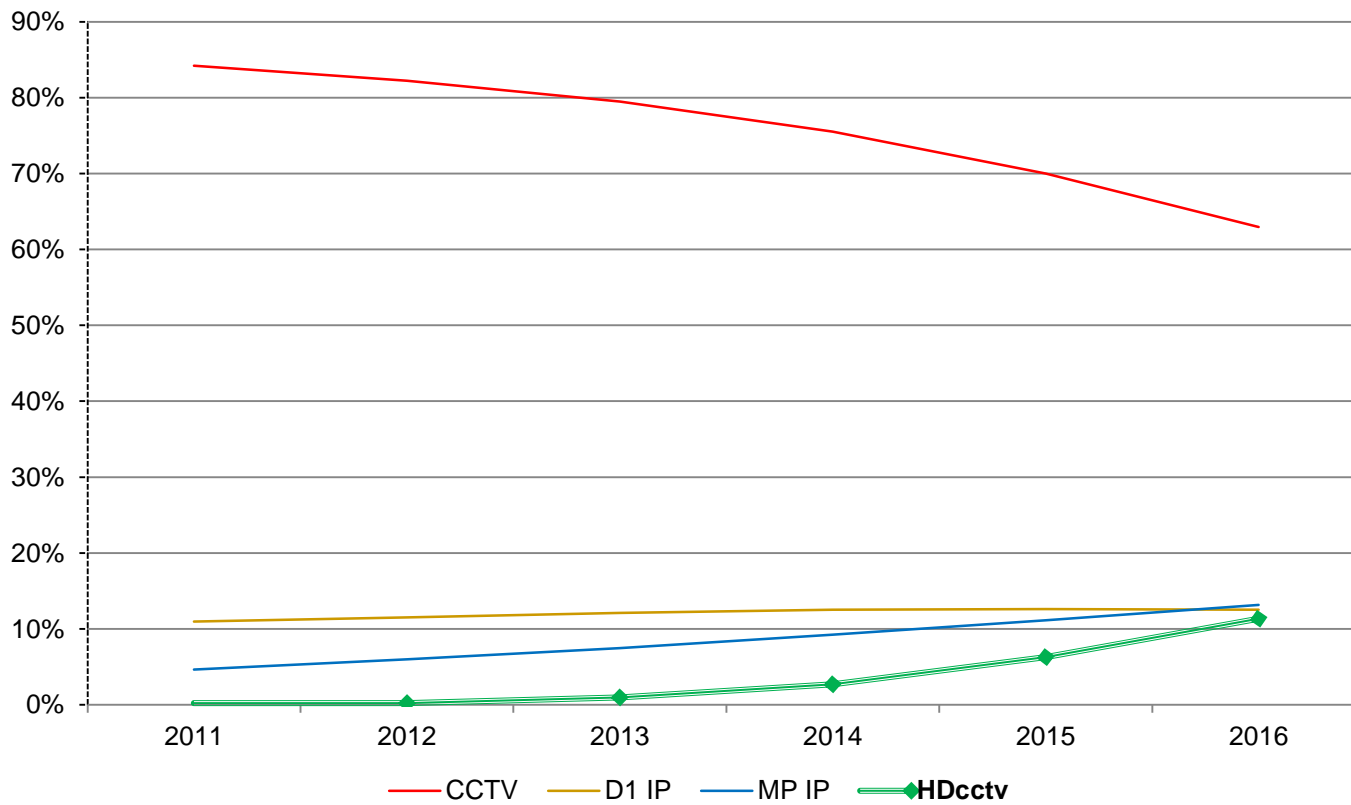
- ## Why HD-CCTV ?

  High-Definition is no more the terminology for IP solution.
  The answer is HD-CCTV.

- ## What is HD-SDI ?

  HD-SDI is short for HD-Serial Digital Interface that were derived from SDI foundational technologies which were developed for the professional HDTV market and widely deployed and defined to be world standard protocol. So the HD-SDI transmission will be only and best way to deliver HD quality image without any loss.
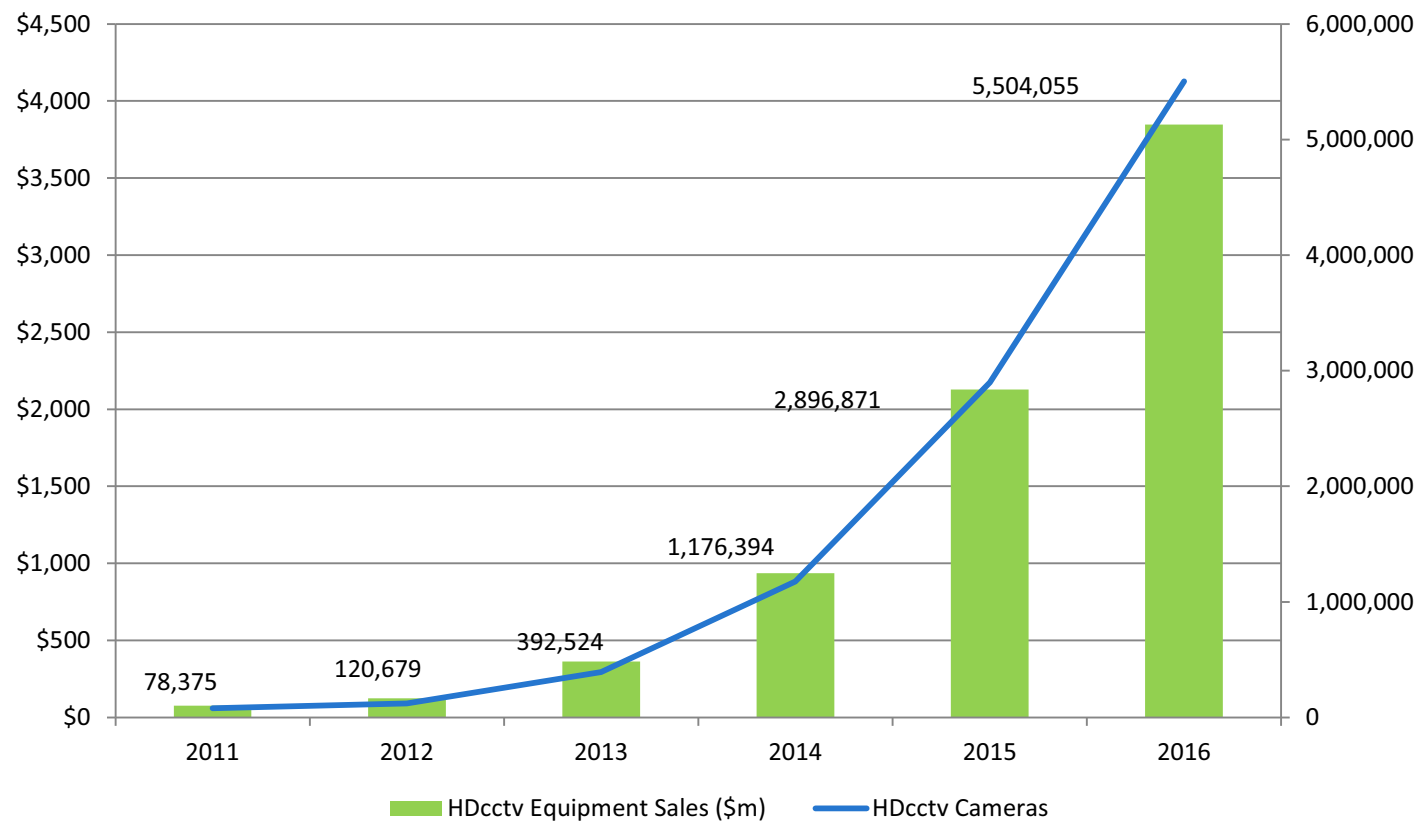
2. Market Trend

- **Camera Market Share**

Chart: Camera Market Share (2011–2016)

Legend: CCTV, D1 IP, MP IP, **HDcctv**

[resource : HDcctv alliance 2011]

HDcctv Market Growth

Chart data:

Year	HDcctv Equipment Sales ($m)	HDcctv Cameras
2011		78,375
2012		120,679
2013		392,524
2014		1,176,394
2015		2,896,871
2016		5,504,055

Legend: HDcctv Equipment Sales ($m) — HDcctv Cameras

[resource : HDcctv alliance 2011]

3. The Advantages of HD-CCTV

- 1080p(1920x1080)/ 720p(1280x720) resolution

- Full HD live view and recording

- Plug-and-play on the coaxial cable

- Uncompressed image transmission, no delay
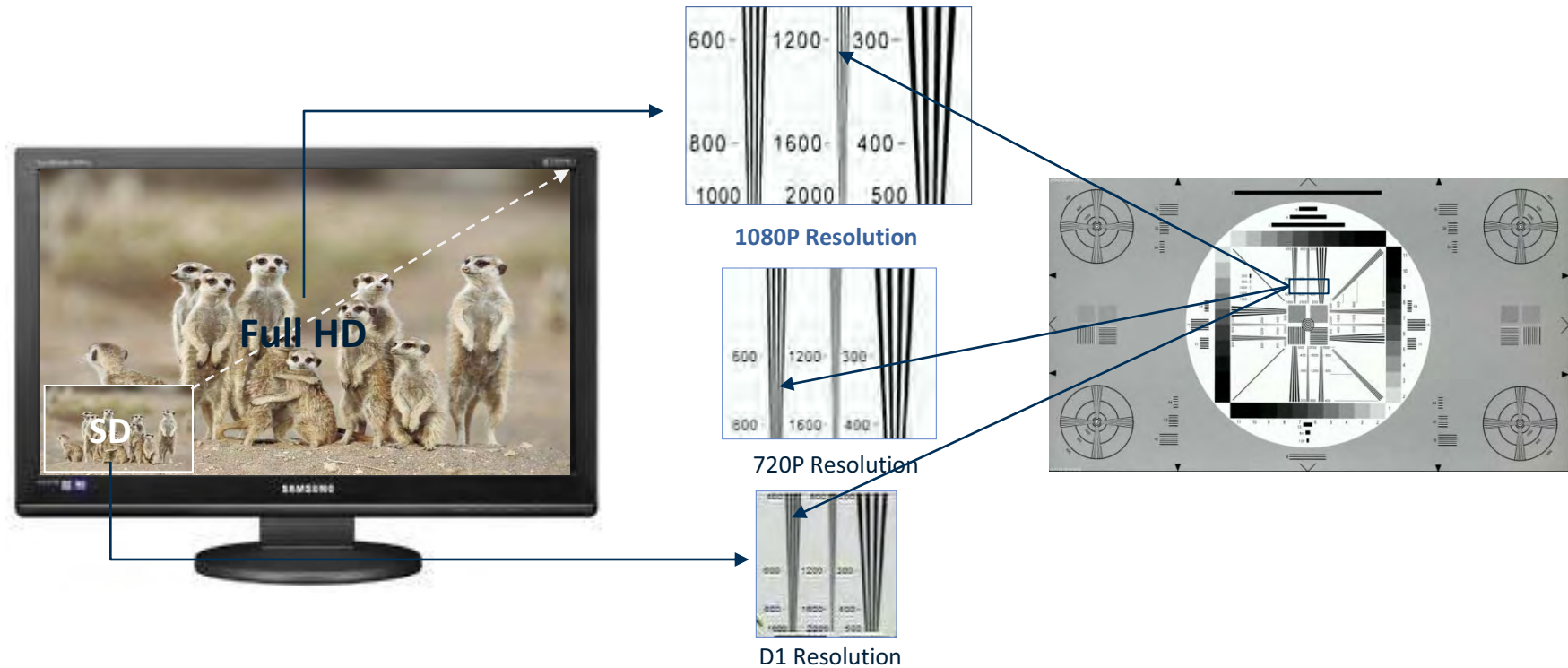
- Progressive scan

HD-SDI vs. Mega IP

PERFORMANCE	HD-CCTV	CCTV	IP Camera
Works with Existing Coax	Yes	Yes	No
Near 0 Latency	Yes	Yes	No
Comprehensive, Global Interface Standard	Yes	Yes	No
Guaranteed 100% Plug & Play	Yes	Yes	No
100% Digital	Uncompressed	No	Compressed
Delivers 720 or 1080 Video Resolution	Uncompressed	No	Compressed
Delivers Full Frame Rate HDTV	Uncompressed	No	No
Commissioned Cost per Video Channel	Medium	Low	High
Delivers 2 Mega Pixel Video	Planned	No	Compressed

3. The Advantages of HD-CCTV

■ **Full-HD Resolution**

- HD-SDI solution provides about 6 times larger than the size of SD-CCTV's.

1080P Resolution

720P Resolution

D1 Resolution

Full HD

SD

4. HD-CCTV products

■ HD series – HD-SDI DVR

	HD400ME	**HD400H**	**HD800H**	HD1600M	PICTURE
channel	4ch		8ch	16ch	
recording	60@720p 30@1080p	120@720p 60@1080p	240@720p 120@1080p		
output	1 HDMI/1 VGA				
internal storage	2 HDD + DVD	4 HDD + DVDRW			
external storage	e-SATA				
	N/A	NVS04R(up to 64Tb)			
features	• Multi streaming – 1080p, 720p, D1 and CIF • Dual resolution support – 1080p, 720p auto recognized • Full frame playback @ 1080p, 720p each • Smart phone connect : iPhone, Android apps. • ATM/POS recording & text search • Windows, Mac. Linux browser connect available				
HDcctv®	Certificate #CC20110729-1	Certificate #CC20110331-1	Certificate #CC20110728-1	N/A	

4. HD-CCTV products

HD series – HD-SDI camera

	C1080BM	C1080B	C1080D	C1080VD	C1080PTZ
picture					
type	Box	Box	Dome(IR)	Vandal(IR)	Speed Dome
features	• superior **resolution/ low light condition** • **SDI performance up to 150m over** • True Day & Night		• WDR/ lens shading • privacy zone • low power consumption : 2W (low temperature)		
resolution	1080p 30fps				1080p 30/60fps
lux(Color)	0.5				1.7
(BW)	0.0005				0.3
output	Strobe for external light		N/A		
dynamic range	TDN & WDR				TDN & DWDR
IR	N/A		option		N/A
housing	N/A			IP66	vandal/waterproof
HD cctv®	N/A	Certificate #CC20110211-1	N/A		
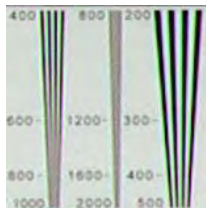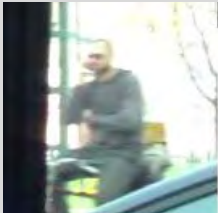
4. HD-CCTV products

▪ HD series – HD-SDI accessories

Repeater

RP102
- HD-SDI Repeater
- HD-SDI 1 to 2 distributor
- Approx. 150m@RG59
- max 1km using 7EA

SDI to OPTIC

SDI2OPTIC
- HD-SDI Fiber Optic converter
- Fiber Optic 1 input
- HD-SDI 1 output
- Up to 30kms at 3Gbps

SDI to HDMI

SDI2HDMI
- HD-SDI Converter
- HD-SDI 1 input
- HDMI 1 output
- Video FRC & Scaler

FIBER OPTIC

HD-SDI camera

HD-SDI camera

HDMI

1080p 60Hz monitor

HDMI

Dvix player

HDMI

HDMI to SDI

HD-SDI DVR

SDI to OPTIC

HD-SDI

HDMI2SDI
- HD-SDI Converter
- HDMI 2 input (Selectable)
- HD-SDI 2 output (distributer)
- Video FRC & Scaler

5. Why ? – HD-SDI DVR

▪ Comparison table

The right silicon for your next BIG idea
Hi3520 H.264 Codec

PERFORMANCE	HD400H	Competitor	REMARK
video encoding/ decoding	1920x1080/ 1280x720	1280x1024	
output	1920x1080/ 1280x720	1920x1080	
frame	full frame playback	loss frame playback	
digital zoom	16x	5x	"N""C" KR maker based on Hi3520
playback resolution	1200 TVL	580TVL	
resolution	Progressive(1080p)	Interlace(1080i)	"E" in TW maker

Hi3520 Key Feature

CPU Core
- ARM1176
- I-cache 16 KB, D-cache 16 KB
- I-TCM 2 KB
- Built-in MMU, supporting multiple open operating systems such as VxWorks, Linux, WinCE, and PalmOS
- Up to 600 MHz operating frequency

Video Encoding/Decoding
- H.264 main profile encoding/decoding
- H.264 baseline profile encoding/decoding
- JPEG/MJPEG baseline encoding/decoding

Video Encoding/Decoding Performance
- Overall performance of real-time H.264 encoding/decoding: 8-channel D1
- Optimal performance for H.264 encoding/decoding: 1280x1024@30fps

- **Output:**
  - Multiple video output interfaces
  - VGA/YPbPr x 1+CVBS x 2
  - VGA x 2
  - Supporting HD output with the maximum resolution of 1920x1080p@30fps, 1920x1080i@60fps

5. Why? – HD-SDI DVR

■ **Main Features**

HD(1080p) camera

TLS protocol
email trans.

eSATA
SERIAL
ATA 3 Gb/s
storage

Internet

• lightening protect design
• SNS(Twitter) supports
• multi Ch. POS/ATM supports
• UPnP supports
• RADIUS protocol supports
• disk mirroring

Gigabit Connect

• mega storage for HD DVR
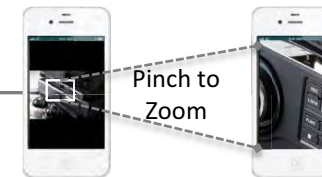• disk mirroring

Cascade up to 64TB

1st streaming
1920*1080

2nd streaming
D1/ CIF

3rd streaming
JPEG

iPhone
Android Apps.
Pinch to Zoom

JAVA viewer
Mac OS   Linux
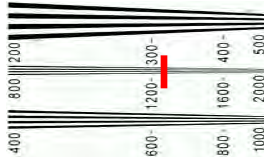
Control Center

Full SDK
(VC++. C#, Java)

Alarm Pop-up   E-Map View   Schedule Backup

Main Display   Smart Search   Playback

5. Why? – HD-SDI camera

- **Comparison table**

PERFORMANCE	C1080B		Competitor				
specification	HD-SDI 1080p		HD-SDI 1080p			2M pixel IP	
resolution(TV Line)	over 1,200		800	950	1,000	600	700
white balance	excellent		good	good	good	bad	middle
low lux Color(lux)	0.2		1			1	2
B/W(lux)	0.0005		0.2			0.1	0.1
company initial	WEBGATE		"S"	"C"	"W"	"L" LW	"S" VCC

5. Why? – HD-SDI camera

- **Resolution – 1080p**
  - it produces clear picture quality by supporting the better resolution than 1280 x 720p camera which having the best resolution quality in the world.
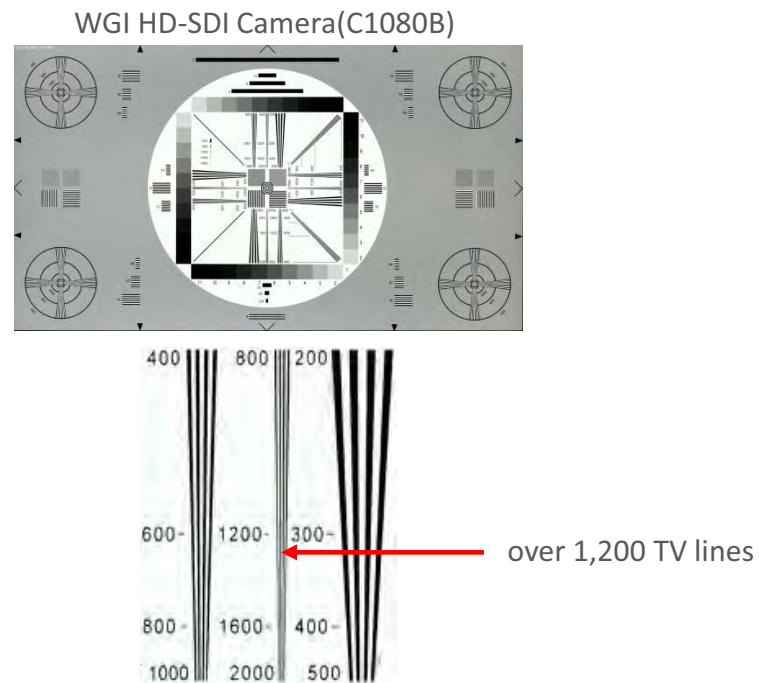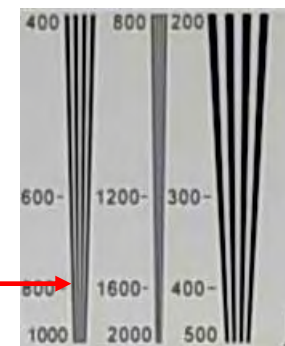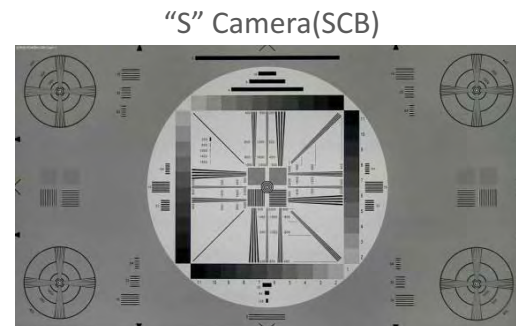
WGI HD-SDI Camera(C1080B)

over 1,200 TV lines

5. Why? – HD-SDI camera

■ **Resolution**
  - it produces clear picture quality by supporting the better resolution than other 2M HD-SDI camera.

WGI HD-SDI Camera(C1080B)
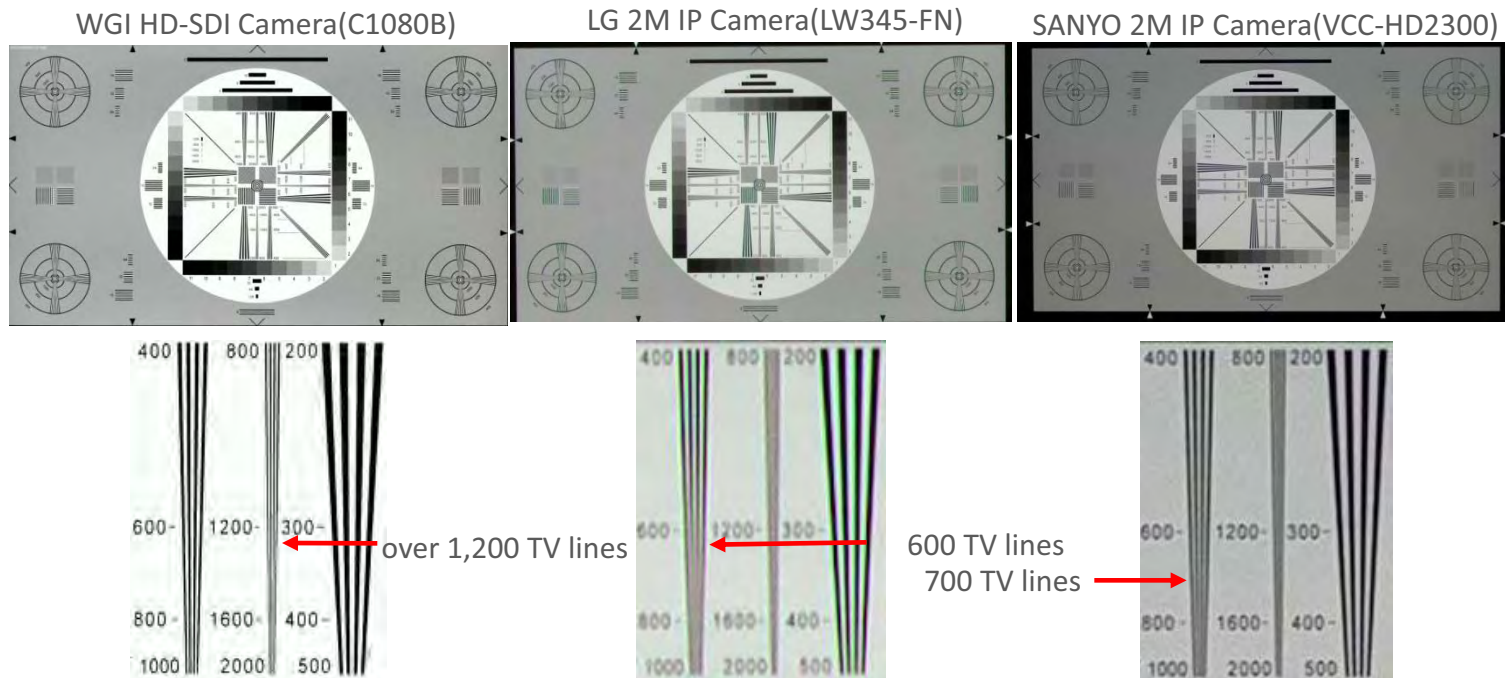
"S" Camera(SCB)
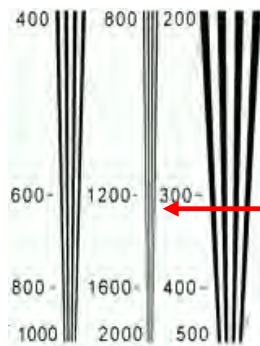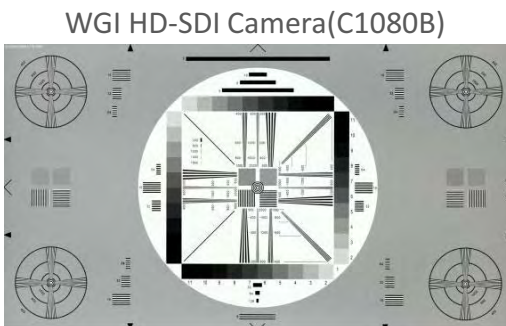
over 1,200 TV lines

800 TV lines

5. Why? – HD-SDI camera

- **Resolution**
  - it produces clear picture quality by supporting the better resolution than 2M IP camera.

WGI HD-SDI Camera(C1080B)   LG 2M IP Camera(LW345-FN)   SANYO 2M IP Camera(VCC-HD2300)

over 1,200 TV lines

600 TV lines
700 TV lines

5. Why? – HD-SDI camera

■ **White Balance**

- WGI's HD-SDI camera has good white balance performance than other company's.
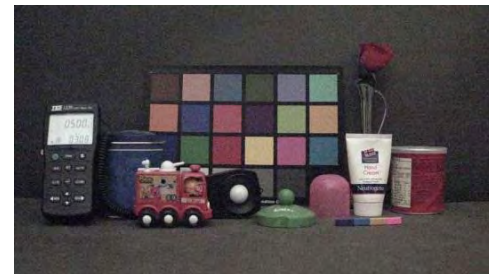
LG LW345-FN(2M, CMOS)

WGI C1080B(2M, CMOS)

[Test environment : 5 Lux Color mode - F1.4, 3100K]

SANYO VCC-HD2300(2M, CMOS)

5. Why? – HD-SDI camera

- **High Sensitivity at Low light conditions**
  - B/W(0.0005Lux), Color(0.2Lux) when 50IRE, 3100K, DSS off
  - When B/W mode, very high-sensitivity through TDN function.

WGI C1080B(2M, CMOS, 0.2Lux)   "S" CAMERA (2M, CMOS, 1.0Lux)

[Test environment : 0.08 Lux color mode - F1.2, Flourescent]

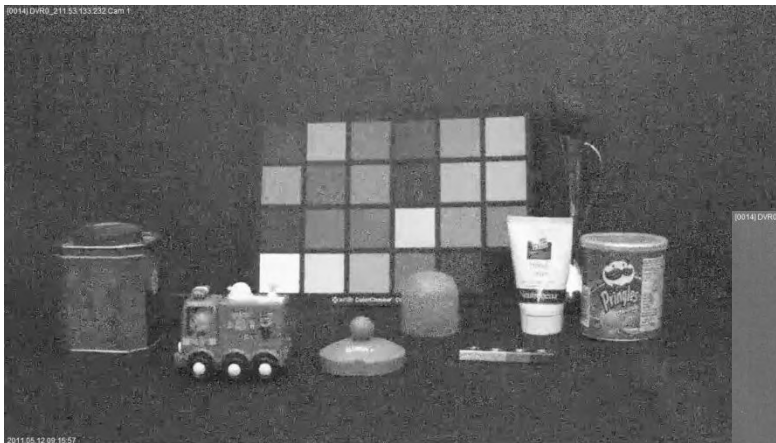WGI C1080B(2M, CMOS, 0.0005Lux)   "S"CAMERA (2M, CMOS, 0.1Lux)

[Test environment : 0.005 Lux Color mode - F1.2, Flourescent]

5. Why? – HD-SDI camera

- **3DNR – 3D Noise Reduction**
  - With 3D Noise Reduction(3DNR) embedded, it produces extremely clear picture quality even under low light condition

C1080B 3DNR OFF

C1080B 3DNR ON ✔ (high)

5. Why? – HD-SDI camera

■ **WDR – Wide Dynamic Range**
- it produces clear picture quality even under back light condition when there are both very bright and dark area simultaneously.

WDR OFF

WDR ON ✓

* NOTE : WDR preforemnace may occur ghost effect while moving object of the short distance (within 5~6m)

5. Why? – HD-SDI camera

- **BLC – BackLight Compensation**
  - it produces clear picture quality by increasing the exposure by a predetermined amount accroding to area selected in the picture.

BLC OFF

BLC ON

5. Why? – HD-SDI camera

- **Smart Exposure at IR-LED**
  - it produces clear picture quality by adjusting the exposure based on area selected in the picture.

SMART EXPOSURE #1

SMART EXPOSURE

5. Why? – HD-SDI camera

■ **DSS – Digital Slow Shutter(Sense-up)**
- it produces clear picture quality by accumulate enough light to operate in conditions the human eye would perceive as complete darkness.
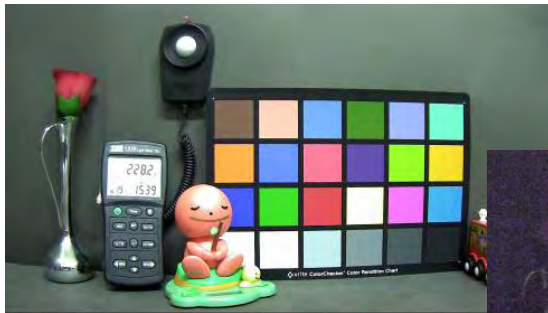
LIGHT OFF, DSS ON = 10x

LIGHT OFF, DSS ON= 5x

LIGHT OFF, DSS OFF

5. Why? – HD-SDI camera

■ **TDN – True Day & Night**

- it produces clear picture quality by removing a physical Infra-Red filter that is removed when night mode, is used when day mode.

LIGHT ON, DAY MODE(228lux)

LIGHT OFF, DAY MODE(0 lux)

LIGHT OFF, NIGHT MODE(0 lux)