



"Mom, can you buy me a satellite as Christmas gift?" "Yes, darling."

Walking with Satellites, 2009 Cal Poly, San Louis Obispo, CA., U.S. After 3 years' research and one year's satellite engineer experience I found possibility of launching and operating personal satellite with fairly reasonable price. And having been lived as artist for 5 years, I could also find ways to integrate the satellite project into cultural context-open source and art.

I & Universe

So far, almost all space programs were led by government or military. And very little were initiated by amateurs. Individual fantasies were used and fostered by institutions. It's time to have a private connection between I and universe. By doing this, we can think about our existence more often, I believe.

Unpractical Technology

When space program is personally used, it might not be as useful as institutional ones. But that does not mean private space program is less important than institutional one. Realizing fantasy and dreaming of another fantasy is as valuable as practical and scientific missions and probably even more to some people.

Collaborative Fantasy

I haven't seen fantasies being realized these days. Probably this is because the era we live in. To realize the project, helps from artists and passionate amateurs are needed. We've seen examples of collaborative intelligences and it's time to build fantasies together. Soon we can buy 200\$ satellite at a store and will wait it to be launched.

Very Kind Open Source ™

What is going to happen when secret technologies are open sourced? Are we going to see boomerang effect like Titanic incident that led governmental radio frequency domination? By providing very kind instructions to build a satellite, I want to bring up a series of questions.

Open Source Satellite Initiative | http://opensat.cc

Song hojun 2009



Open Source Satellite Initiative Logo designed by lee jangsub, 2009

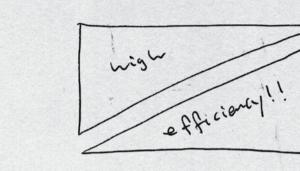
Technology As Texture!

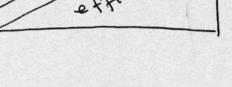
Launch

D.I.Y.

Operate

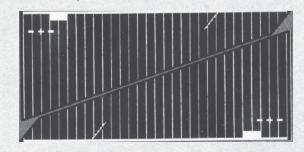
Solar Cell



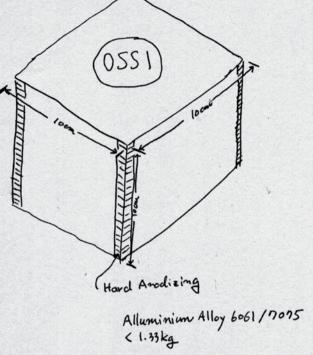


GaAs > Silicon

Unlike normal solar cells you see every day, we need a highly efficient solar cell to build a panel. And to fix the cell onto the panel, we need space-grade silicon adhesive. The problem is that most of these parts are export licensed - i.e. hard to import. But we have good alternative, as follows:



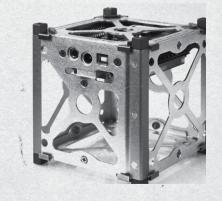
TASC Solar Cell by Spectrolab



3

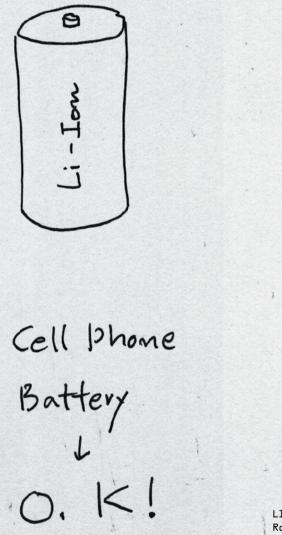
light weight, high vibration resistance, hard anodized aluminum rails for electrical insulation

Ready-made Chassises are expensive, so we build inhouse.



Cubesat Kit from Pumpkin Co.

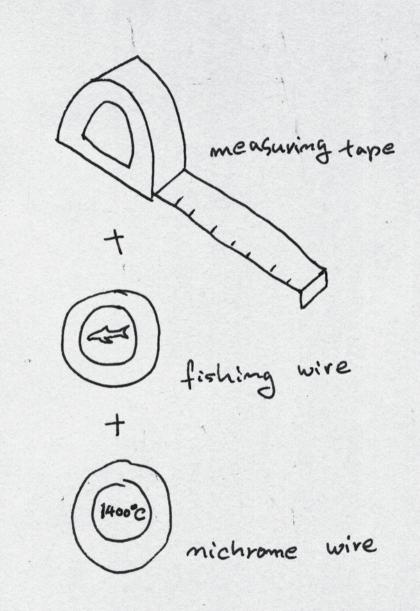
Conventionally, due to the harshness of the space environment, commercial batteries were regarded as inappropriate but a series of recent satellite programs have used commercial Li-Ion batteries in their satellites and proved that they worked fine.



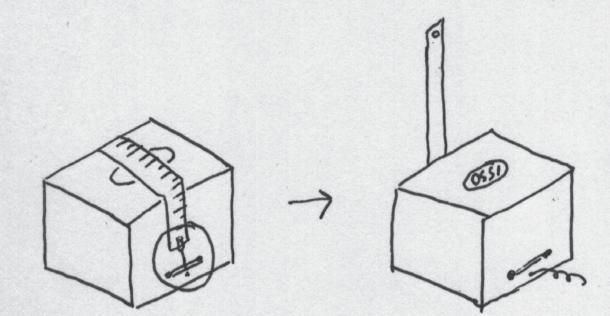
3

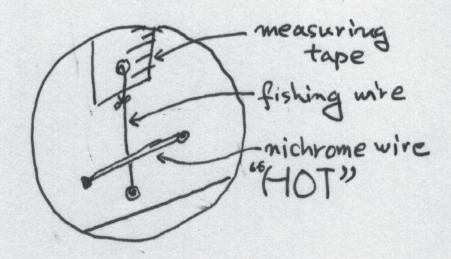
Aq 0022-dfSf-ff MANNC. Batter mate coloce of the MANNC. Batter mate coloce of the MANNC. Batter mate coloce of the Do not dissues and provide of the Do

Rosebatteries.com

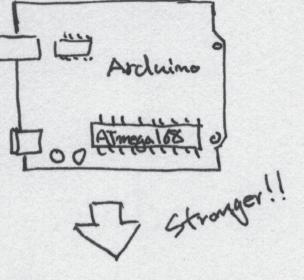


Wrap your satellite with measuring tape and tie fishing wire to the end of the satellite. When high voltage is applied to each end of the nichrome wire, it becomes hot and will cut the fishing wire to deploy the antenna.





Controller



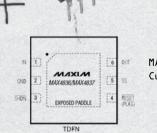
Watchdo Timer	8 Current Gongor	6
(AD) 590	Altmega Automo	*2,h



Many artists and hobbyists use Arduino to realize their projects. Using an Arduino board as the main controller for the satellite will give OSSI the chance to cooperate with many creative individuals.

However, to use a bare Arduino board in a space environment might be hard. To mitigate radiation effects, a watchdog timer and current sensors are added. Also the microcontroller is upgraded from commercial to automotive grade to cope with severe temperature changes in space.

> MAX7OL Watchdog Timer



MAX4836 Current Sensor

Arduino Duemilanove by arduino.cc

Reliability AS ART

Piggyback Riding

645

Satellite

1.14

COMMERCIAL

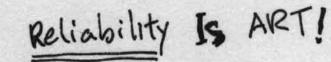
INDUSTRIAL

MILITARY

Strong

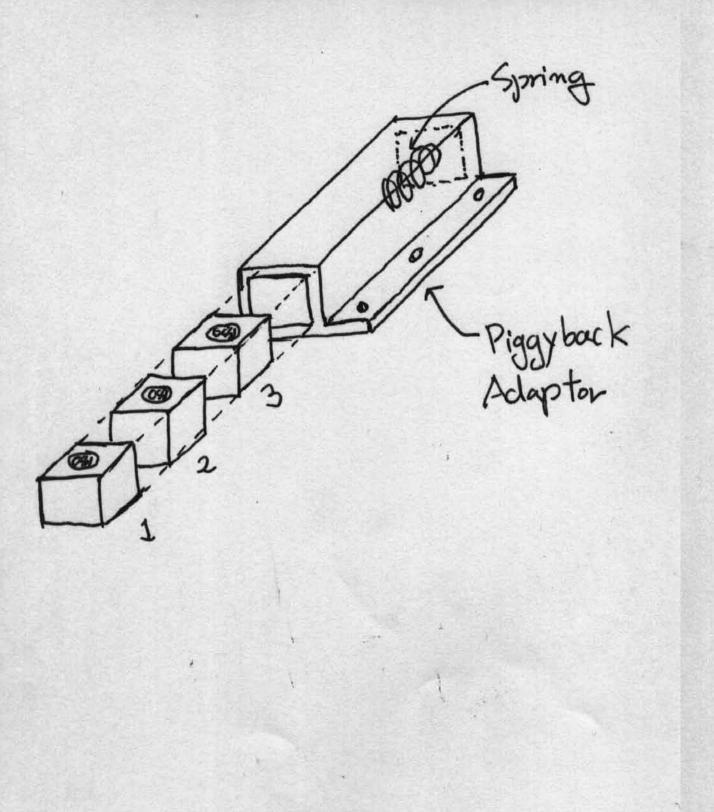
AEROSPACE

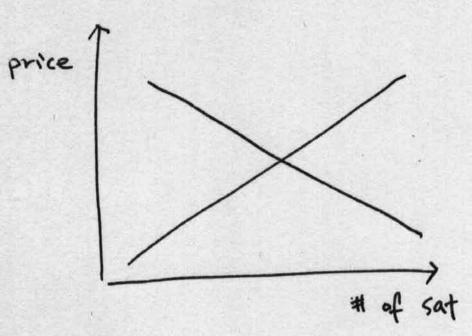
In order for an electronic device to be used in a space environment, it needs to tolerate radiations and should have good temperature ratings. What is going to happen when stories can be stored in reliable electronic devices? I'd say "The Strongest Weapon in the World" is an electronic device that stores beauties of the world even under nuclear radiation, which then can also reproduce the beauties in digital format.

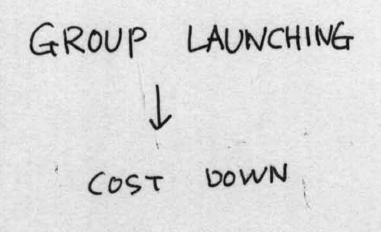


Can I go "with you?

Rocket rent takes up the largest portion of the budget when it comes to launching a small personal satellite. But we can reduce the rent by piggyback-riding on a primary mission satellite.







Pizza Fregs.

Used frequency earth->satellite: 145MHz satellite->earth: 435MHz As you can see, the frequency is in the FM radio band. So you can modify your old FM radio to receive data from satellites.

435MHz

The most important thing in a satellite program is frequency allocation for your satellite. The IARU (International Amateur Radio Union) does this. Any amateur radio operator can request frequency coordination but to get it, we also need to consider politics within the space community. So a strategy is needed to launch a satellite as an individual and a person from the far east.

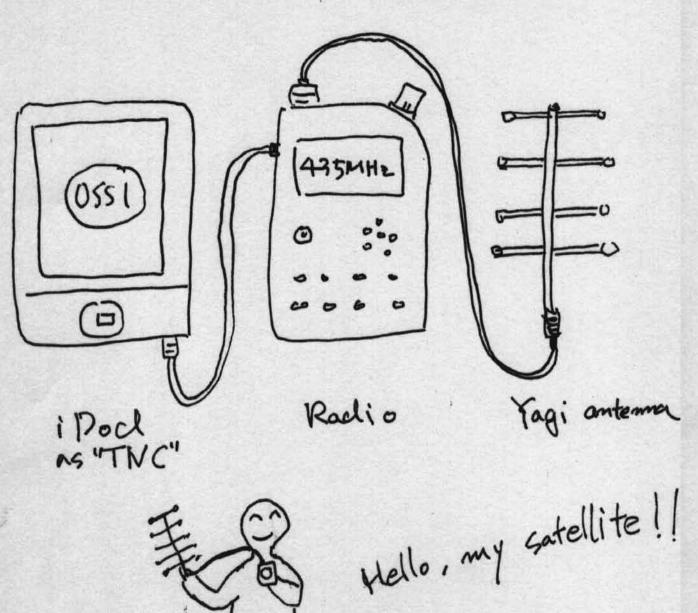
Amoteur

" Com 2 have ?"

Mode J

14514172

Station Portable Ground



To construct a portable ground station, you need to have an iPod, a portable radio, and D.I.Y.-ed Yagi antenna. By programming your iPod you can receive data from your satellite through the Internet. You can also track your satellite.

With no GPS and no propulsion system onboard you need help from people to locate your satellite. •

found You !!

Amateur

Radio Operator

Funding

Usage

Thought

Mission

Developing satellite with open source resources Building satellite with COTS components Operate satellite in conjunction with artists Funding satellite program with cultural events Demonstrating private satellite program is possible

Technical Specification

Dimension LU Cubesat (LOOmm x LOOmm x LOOmm, <L.33kg)

Telemetry J Mode: AX.25

Bus

OBC: ATmegalb8 Automotive MCU with Arduino IDE environment EPS: Li-Ion battery with MPPT charge controller / TASC solar cell COMMS: J-Mode UHF / VHF Transceiver

Payload

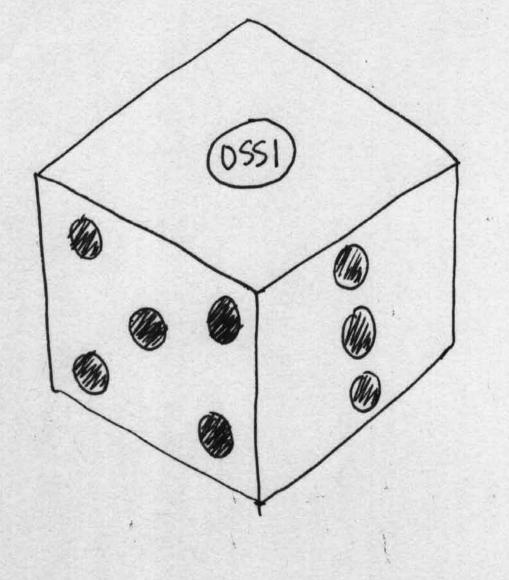
Particle detecter (GM tube or CEM) with random number generator Radio background emission detector with random number generator

Schedule

3

Flight Module O9' &4: Frequency Coordination O9' &4: Building LO' &1: Testing LO' &3: Launching LL' &L: 200\$ satellite Mass Production

Events D9' Q3: Site: Soft goods: Forum: Workshop: Book publishing D9' Q4: LOth IAC exhibition: Art Museum exhibition L0' Q1: TBD L0' Q2: TBD L0' Q3: Music Festival



"A life is boautiful combination of Randomness"

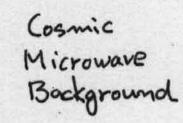
Satellite GOD Man - Made D.I.Y Resurrection Launch Commication Pray Reply NA Miracle N/A kill Switch Die



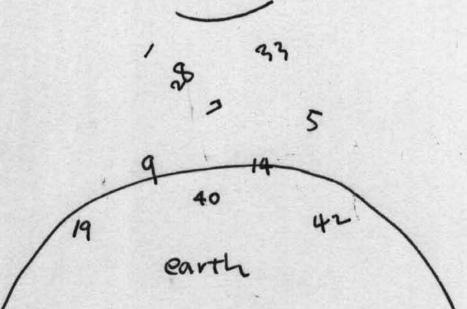
Meteor Gatellite Controlled

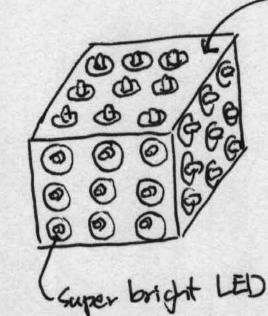
The satellite senses Cosmic Microwave Background emission, which is proof of the big bang, to seed a random number generator and transmit the number to earth. We use these numbers for an actual lottery and we can also use them to generate particle-like computer graphics.

lottoNumber = srand(bigBang); commPacket = rand(lottoNumber);



Lottery Number





Polished Al. Panel

Space Romance 2.0

Controllable shooting star on earth. Choose a location where you would like to make a wish and push the button. Blinking pattern is morse code. You can also reserve messages for the other side of the world.

Wish when you want to!

Funding Rule

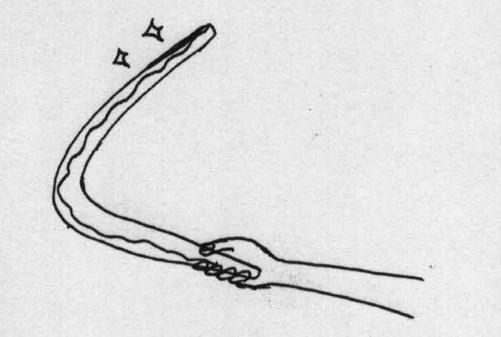
Funding through small donations Funding through cultural events Funding through selling art products

If you buy OSSI products. you can apply for "satellite lotto."



Numi(Spain) / Ohyun(Germany) / Jangsub(Korea) / DIZI (Korea) /
Jay(Korea) / Hyup(Korea) / Powderly(Graffiti Research Lab) / hhjjj(0SSI)

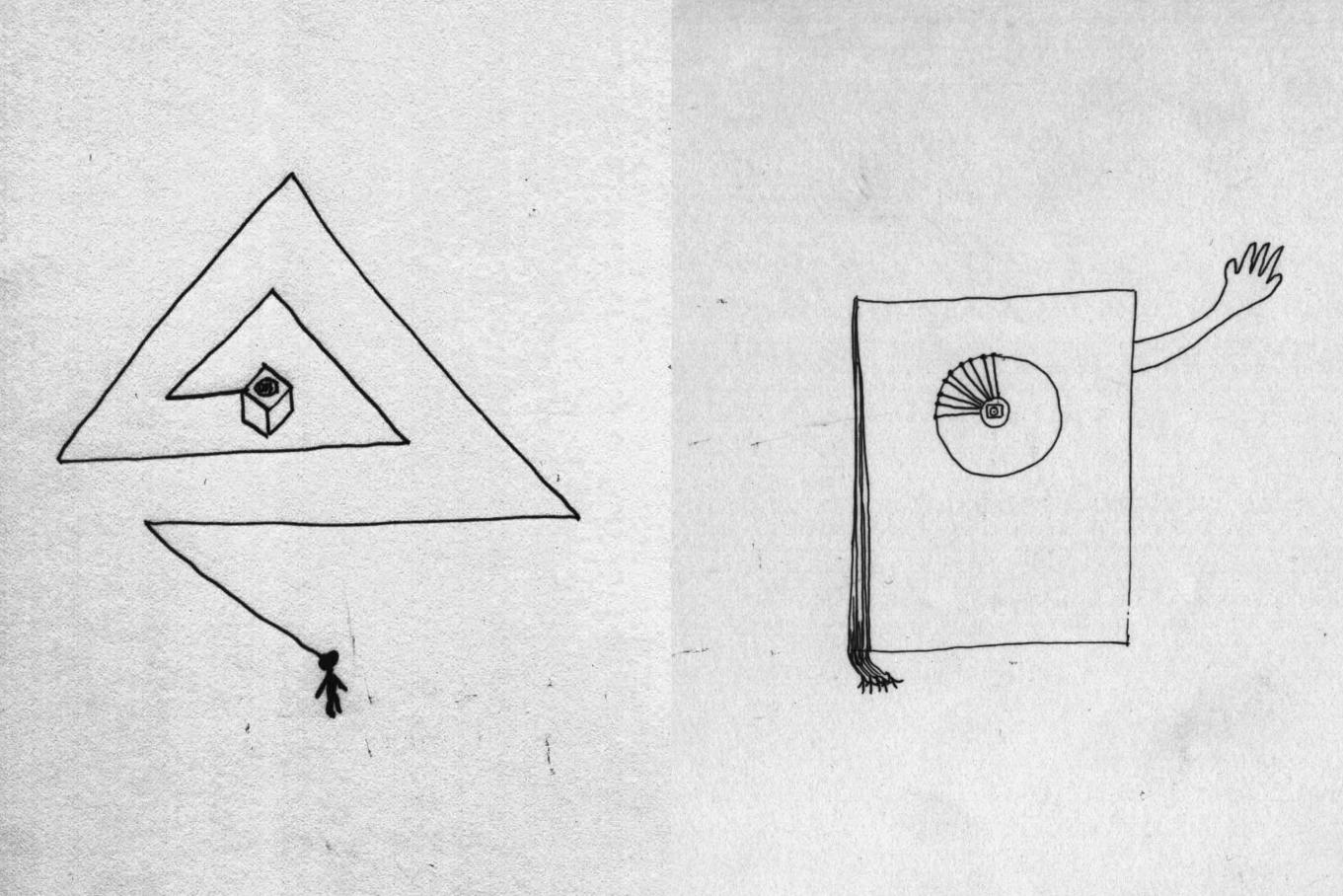
OSSI Effectors Origami 0 00 0 0 0 00 (dss) (HSS) INPUT = EARTH fold your OUTPUT = UNIVERSE global orbiting device



when Art become practical, we call it technology.

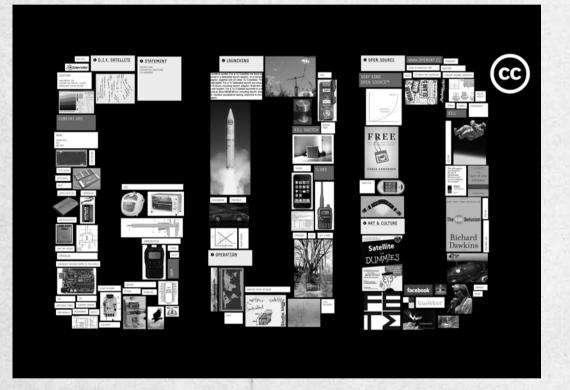
when Technology become useless, we call it Art.

OPEN secret technology Boomerang effects



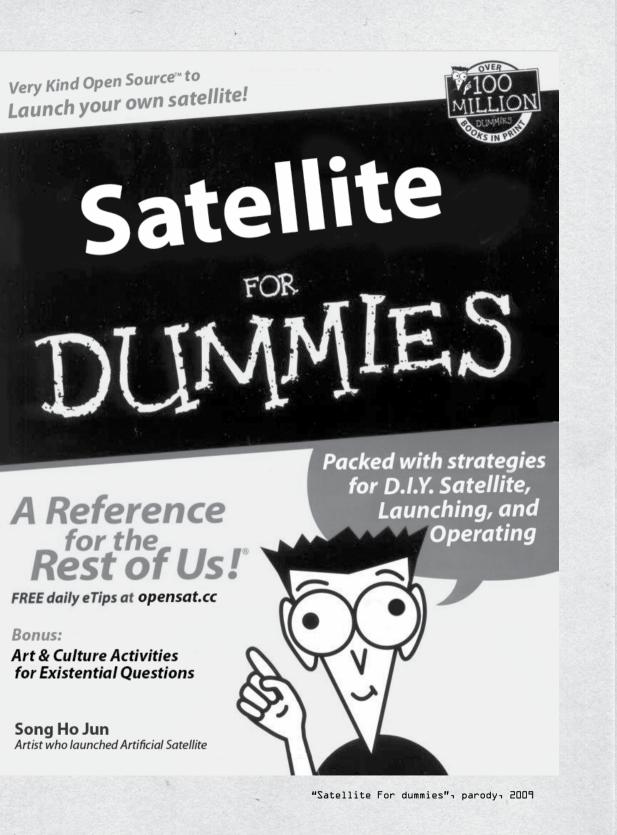
FAQ

-Why do you launch satellite? -Is is legal to launch a satellite as an individual? -Is 0SSI-L criticizing religions? -Is 0SSI an art project or a technology project? -0SSI-L's purpose is not scientific or practical at all. How do you think 0SSI-L can benefit the world? -What is ROI (Return On Investment) in 0SSI? -Don't you think you'd better spend the budget to help poor people rather than launching a satellite? -What do you think is going to happen when once secret technologies are all available online? -What is Very Kind Open Source ™? -What is the chance of 0SSI project being abused by terrorists? -Who are you?



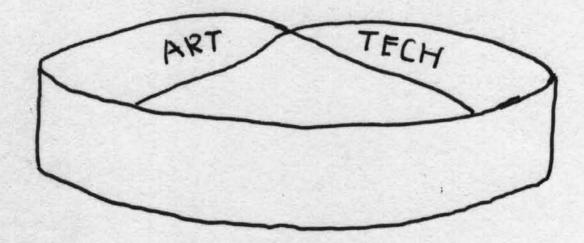
2009 Cubesat Developoers' Workshop Poster Designed by Kwon Ohyun

The letters "GOD" are used to show the D.I.Y. process of launching a satellite as well as related art and culture activities.



Space-grade Gucci Flora, 2009 MLI Film+HeatResistant Tape

Send "Eau de toilette " to space!



Art & Tech. Moebius Strip, 2009

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