

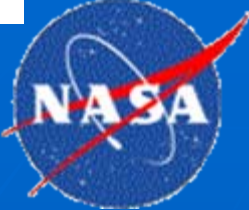
# **SPECTRUM POLICIES BEING IMPLEMENTED GLOBALLY IN AN ERA OF DIFFERENCES BETWEEN GOVERNMENT AND COMMERCIAL SPECTRUM MANAGERS**

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2007

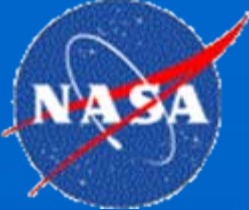


# SPECTRUM MANAGEMENT ADVANCES



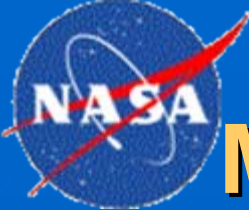
## WHAT? WHY? WHO?

- 2003 WRC RESOLUTION 951 “OPTIONS TO IMPROVE THE INTERNATIONAL SPECTRUM REGULATORY FRAMEWORK”
- 2005 GLOBAL REGULATORS SYMPOSIUM “BEST PRACTICE GUIDELINES FOR SPECTRUM MANAGEMENT TO PROMOTE BROADBAND ACCESS”
- EC PRESSURE FOR EU MEMBER STATES TO PLAN ACCESSIBILITY FOR ANALOG TV SPECTRUM
- CEPT HAS SPECTRUM MANAGEMENT HIGH ON ITS AGENDA
- ERO CONTINUES STUDIES OF SPECTRUM MANAGEMENT
- GERMANY STUDIES SPECTRUM ACCESS
- THE UNITED KINGDOM ADDRESSES SPECTRUM OPTIONS
- DENMARK MOVES TOWARD SPECTRUM COMMONS
- SOUTH AFRICA REASSESSES SPECTRUM MARKET DEMAND
- CHINA INTENSELY PLANS SPECTRUM USE
- THE U.S. IS UNDER A PRESIDENTIALLY-MANDATED EFFORT TO *ADVANCE*
- OTHER COUNTRIES MOVE TOWARD SPECTRUM *IMPROVEMENTS*
- RETHINKING OF SPECTRUM IS OCCURRING EVERYWHERE AS SPECTRUM IS BECOMING HARDER TO OBTAIN
- .....



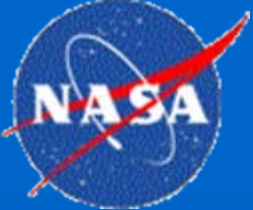
# UNDERSTANDING SPECTRUM MANAGEMENT *ADVANCES*

- **WHY ARE SPECTRUM REGULATIONS BEING EXAMINED?**
- **WHAT ARE THE DRIVERS AND WHAT ARE THE PROBLEMS FOR SPECTRUM MANAGEMENT?**
- **WHAT IS THE IMPACT OF TECHNOLOGY?**
- **HOW CAN SPECTRUM EFFICIENCY BE INCREASED?**
- **WHAT IS THE PROGNOSIS FOR *ADVANCEMENT*?**
- **CONCLUSIONS**



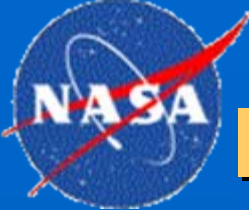
# MOTIVATIONS FOR *ADVANCING*

- SPECTRUM ... A VITAL BUT LIMITED RESOURCE WITH DEMANDS
- BETTER RESPONSES ARE NEEDED TO NATURAL DISASTERS AND TERRORIST ATTACKS
- REQUIREMENTS FOR ECONOMIC GROWTH (GDP)
- EXPLOSION OF SPECTRUM-BASED TECHNOLOGIES (VOICE, DATA, AND VIDEO)
- EXISTING LEGAL & POLICY FRAMEWORKS ARE IN NEED OF EXAMINATION



# ROOT ISSUE FOR *ADVANCES*

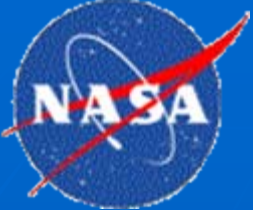
**THE TRADITIONAL SPECTRUM ALLOCATION FRAMEWORK COMPARTMENTALIZES SPECTRUM BY SERVICES, MANIFESTED BY THE WELL KNOWN AND INCREDIBLY COMPLEX ALLOCATION TABLE THAT REPRESENTS TECHNOLOGY IN A STATIC MODEL. INDUSTRY THAT EXPLOITS TECHNOLOGY AND SEEKS TO USE SPECTRUM IN DIFFERENT WAYS, SEEKING FLEXIBILITY, FINDS THAT OPPORTUNITIES ARE, THEREFORE, DIMINISHED.**



# IS REORGANIZATION NEEDED?



- INTERNET ACCESS (WI-FI AND WI-MAX)
- THIRD AND FOURTH GENERATION SERVICES
- DIGITAL RADIO AND TELEVISION
- ULTRA-WIDEBAND (UWB)
- BROADBAND OVER POWER LINES (BPL OR PLT)
- MSS ANCILLARY TERRESTRIAL VS IMT-ADVANCED
- RADIOFREQUENCY IDENTIFICATION DEVICES (RFID)
- SECURITY REQUIREMENTS
- GROWING ECONOMIES
  - TAKING ADVANTAGE OF NEW TECHNOLOGIES AND INNOVATION
  - PROTECTING EXISTING SERVICES
  - SOME SERVICES ARE LIMITED IN ABILITY TO ADOPT TECHNOLOGY



# THREE DRIVERS FOR SPECTRUM

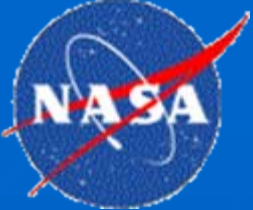
**MOBILE USES**

**INTERNET ACCESS**

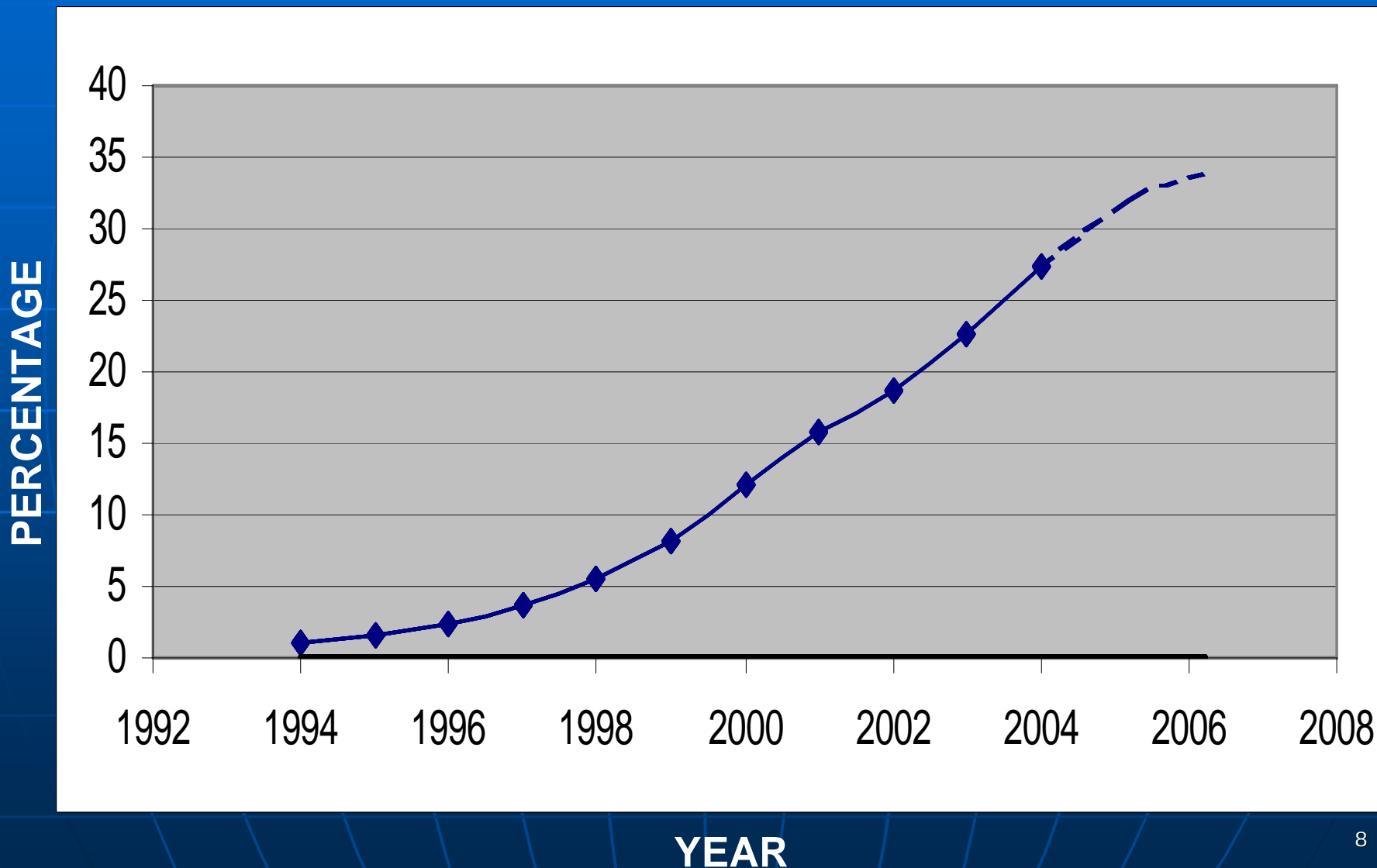
**SAFETY AND SECURITY**

**WITH COMPLICATIONS FOR GOVERNMENT- MANAGED SPECTRUM,  
LEADING TO POSSIBLE DIFFERENCES BETWEEN GOVERNMENT  
AND COMMERCIAL SPECTRUM MANAGERS**



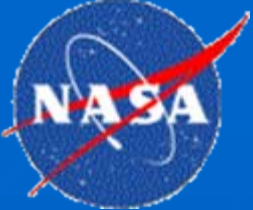


# MOBILE TELEPHONE SUBSCRIBERS GLOBALLY PER 100 INHABITANTS

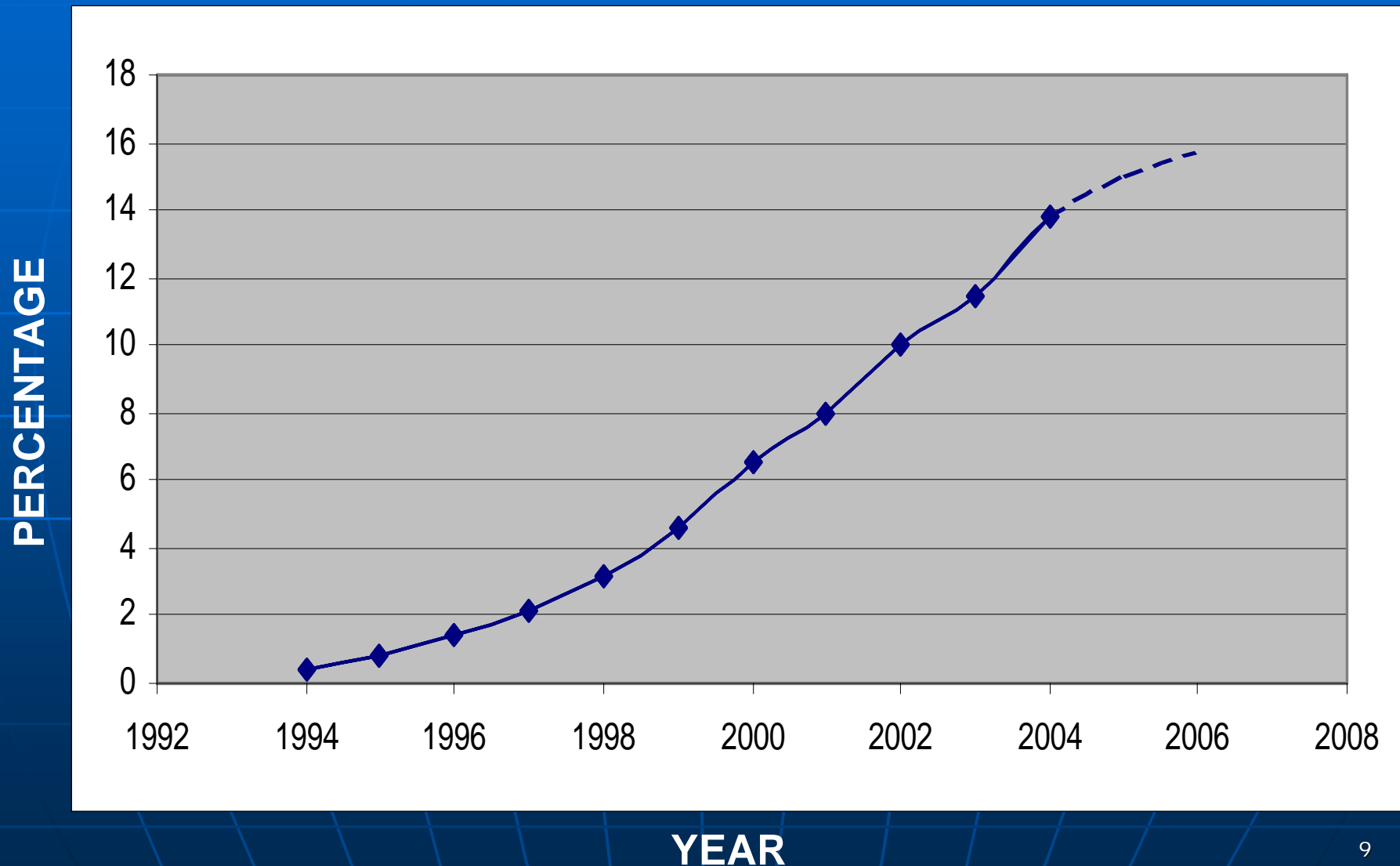


SOURCE: INTERNATIONAL TELECOMMUNICATION UNION

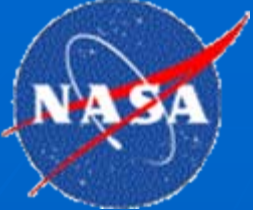




# INTERNET USERS GLOBALLY PER 100 INHABITANTS



SOURCE: INTERNATIONAL TELECOMMUNICATION UNION

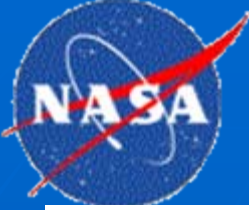


# VALUE OF SPECTRUM

**THE U.S. RECENTLY FINISHED AUCTION NO. 66  
(ADVANCED WIRELESS SERVICES - - IMT-2000 OR  
IMT-ADVANCED):**

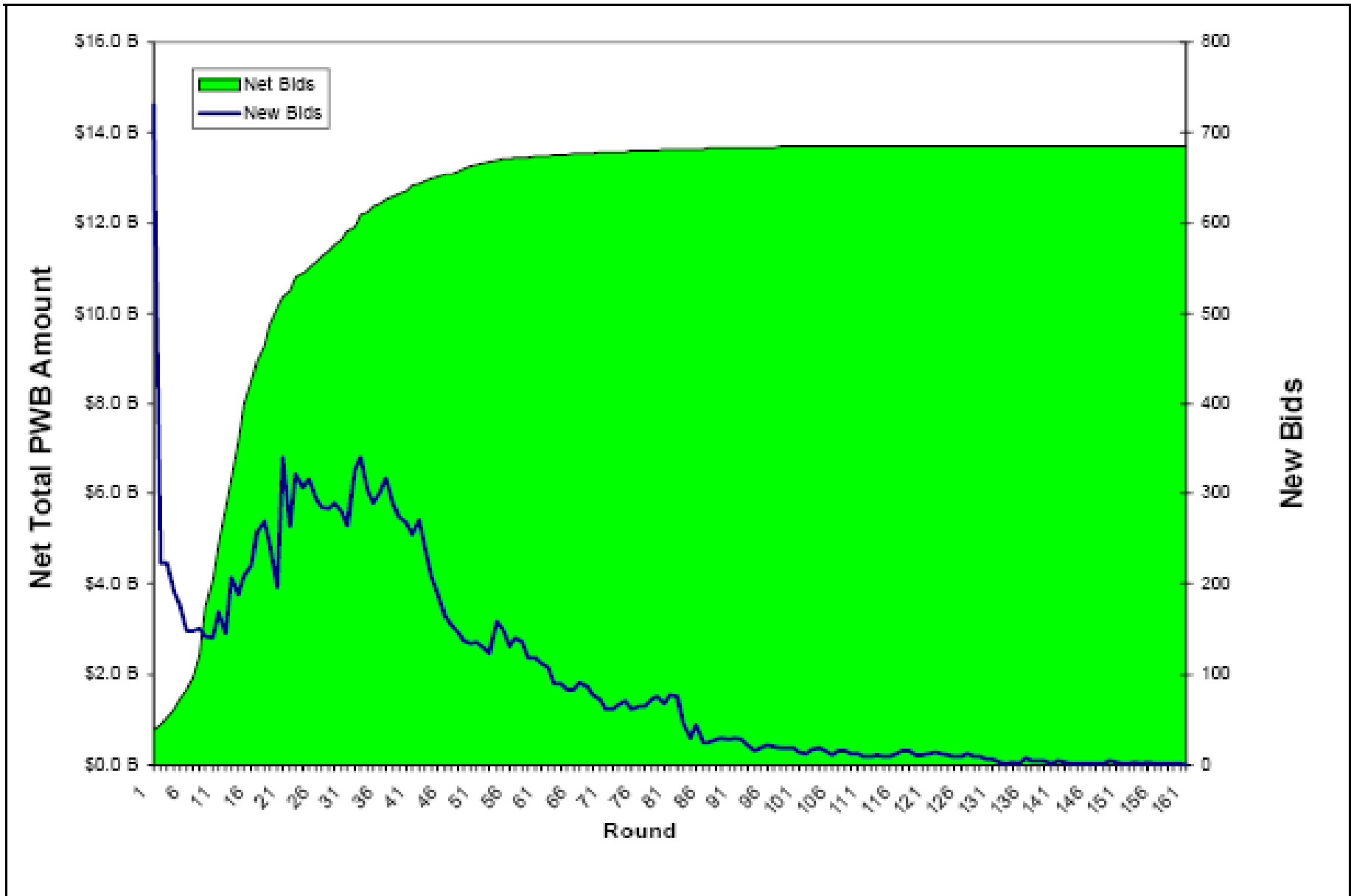
- 168 QUALIFIED BIDDERS
- 90 MHz OF SPECTRUM AT 1.7 AND 2.1 MHz
  - NET BIDS TOTALED \$13.7 BILLION
  - 1,087 15-YEAR LICENSES

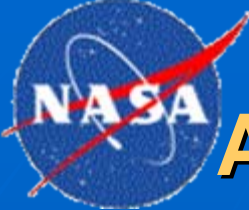
**35 LICENSES FOUND NO BIDS, INDICATING THAT  
SOME SPECTRUM-SPACE HAS NO CURRENT VALUE.**



# HISTORICAL FCC AUCTION 66

(161 ROUNDS - - FINAL)





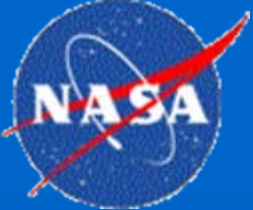
# **A FEW IMPORTANT WORDS ABOUT SAFETY, SECURITY, AND ACCESS TO SPECTRUM IN DISASTER RELIEF\***

**“FROM THE MOBILIZATION OF  
ASSISTANCE TO THE LOGISTICS CHAIN,  
WHICH WILL CARRY ASSISTANCE TO  
THE INTENDED BENEFICIARIES,  
RELIABLE TELECOMMUNICATION LINKS  
ARE INDISPENSABLE”**

**(EMPHASIS ADDED)**

**KOFI ANNAN  
UNITED NATIONS SECRETARY GENERAL**

**\*REQUIRES GOOD Á PRIORI SPECTRUM MANAGEMENT**



# AT THE ITU

**RESOLUTION 951 (WRC-2003), “*OPTIONS TO IMPROVE THE INTERNATIONAL SPECTRUM REGULATORY FRAMEWORK*”, RESOLVED THAT STUDIES BE CARRIED OUT TO EXAMINE THE EFFECTIVENESS, APPROPRIATENESS AND IMPACT OF THE RADIO REGULATIONS, WITH RESPECT TO THE EVOLUTION OF EXISTING, EMERGING AND FUTURE APPLICATIONS, SYSTEMS AND TECHNOLOGIES, AND TO IDENTIFY OPTIONS FOR IMPROVEMENTS IN THE RR ...**

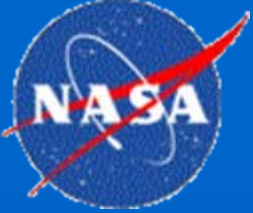
**MORE TO COME AT THE 2007 WORLD  
RADIOCOMMUNICATION CONFERENCE**



## **ONE EXAMPLE OF *ADVANCEMENT***

**IN 2005, THE EUROPEAN COMMISSION (EC) LAUNCHED A POLICY AND REGULATORY STRATEGY TO TAKE ADVANTAGE OF SPECTRUM TO FOSTER EMPLOYMENT, ECONOMIC GROWTH, AND BETTER USE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT).**

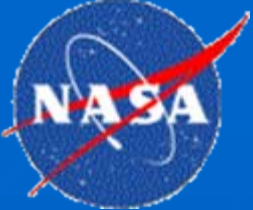
**“TECHNICAL, REGULATORY AND ECONOMIC ISSUES RELATING TO COLLECTIVE USE OF RADIO SPECTRUM”**



# EC STRATEGY ELEMENTS

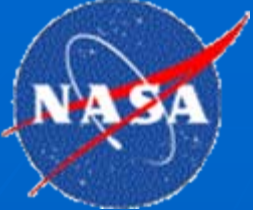
- 1. CREATE A MODERN, MARKET-ORIENTED REGULATORY FRAMEWORK FOR THE INFORMATION SOCIETY AND MEDIA MARKETS;**
- 2. PROMOTE MORE RESEARCH AND DEVELOPMENT TO DRIVE DIGITAL CONVERGENCE; AND**
- 3. FOSTER AN INCLUSIVE ELECTRONIC SOCIETY.**





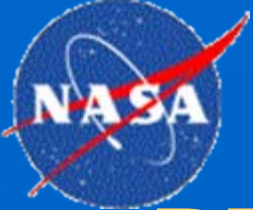
# ACHIEVING EC EXPECTATIONS ...

- 1. BROADBAND SPECTRUM ACCESS TO THE INTERNET IS REQUIRED;**
- 2. RESEARCH IS NEEDED FOR DIGITAL LIBRARIES, ELDERLY CARE, AND AUTOMOTIVE SAFETY; AND**
- 3. PARTICULARLY ACCOMMODATE RFID APPLICATIONS, PRESERVING PERSONAL PRIVACY. (PRIVACY IS ALSO A SERIOUS RFID ISSUE IN THE U.S. ANOTHER MAJOR RFID ISSUE IS THE RISE IN THE NOISE FLOOR THAT ADVERSELY AFFECTS EXISTING SERVICES.)**



# A SECOND EXAMPLE

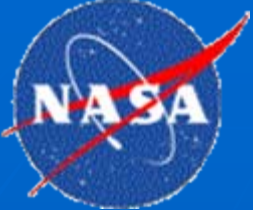
**THE UNITED STATES IS IN THE  
MIDDLE OF A PRESIDENTIALLY-  
DIRECTED, MULTI-YEAR EFFORT  
TO *ADVANCE* SPECTRUM  
MANAGEMENT**



# **PRESIDENT BUSH'S INITIATIVE**

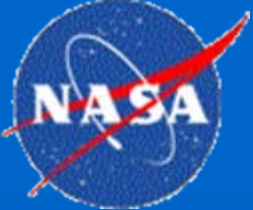
**BY PRESIDENTIAL MEMORANDUM,  
THE U.S. DEPARTMENT OF COMMERCE WAS  
DIRECTED, WITH PARTICIPATION OF OTHER  
RELEVANT GOVERNMENT AGENCIES, TO ...**

- 1. ESTABLISH A SPECTRUM TASK FORCE TO DEVELOP RECOMMENDATIONS TO IMPROVE FEDERAL SPECTRUM MANAGEMENT;**
- 2. CONVENE PUBLIC MEETINGS TO ADDRESS SPECTRUM MANAGEMENT; AND**
- 3. PREPARE REPORTS WITH RECOMMENDATIONS AND SUBMIT THEM TO THE WHITE HOUSE.**



# **PRESIDENT'S SPECTRUM POLICY INITIATIVE TIMELINE**

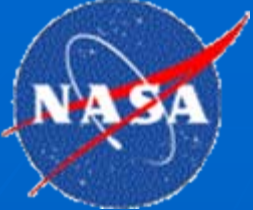
**2005 – 2011, OR SEVEN YEARS  
TOTAL  
FOR IMPLEMENTATION**



# **PRESIDENT'S EXECUTIVE MEMORANDUM**

**COMMITTED TO PROMOTING DEVELOPMENT  
AND IMPLEMENTATION OF A SPECTRUM  
POLICY FOR THE 21<sup>ST</sup> CENTURY**

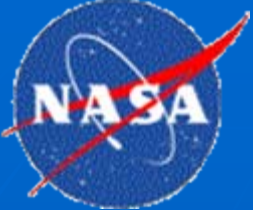
- 1. FOSTER ECONOMIC GROWTH;**
- 2. ENSURE SECURITY;**
- 3. DEVELOP COMMUNICATIONS TECHNOLOGY  
AND SERVICES; AND**
- 4. SATISFY PUBLIC SAFETY, SCIENTIFIC  
RESEARCH, TRANSPORTATION  
INFRASTRUCTURE, AND LAW ENFORCEMENT.**



# **BEST SPECTRUM MANAGEMENT PRACTICES**

**21 PRACTICES WERE FINALLY AGREED  
BY ITU-R STUDY GROUP 1  
(SPECTRUM MANAGEMENT) AFTER  
SEVERAL YEARS OF DISCUSSION  
AND NEGOTIATION - - PUBLISHED BY  
THE ITU IN 2005 AS AN ANNEX OF THE  
ITU**

***HANDBOOK ON NATIONAL SPECTRUM  
MANAGEMENT***



# CONCLUSIONS

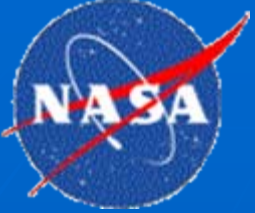


**AFTER WATCHING SPECTRUM MANAGEMENT CHANGES OVER THE LAST HALF-CENTURY, NASA FINDS THAT SPECTRUM MANAGEMENT *ADVANCEMENT* IS A CONTINUAL, EVOLUTIONARY PROCESS THAT, FROM TIME- TO-TIME, HAS BEEN NECESSARILY REVIEWED AND RENEWED.**

**TECHNOLOGY, COMITY, AND GOODWILL HAVE SOLVED SPECTRUM MANAGEMENT ISSUES OVER THE YEARS. WE CAN CONTINUE TO WORK TOGETHER, SHARE KNOWLEDGE, NEGOTIATE IN GOOD FAITH, AND THEN ALL REAP THE BENEFITS OF GOOD SPECTRUM STEWARDSHIP.**

***ADVANCES* CAN BE REALIZED BY FLEXIBILITY IN SPECTRUM MANAGEMENT SO AS TO ACHIEVE NEEDED SPECTRUM ACCESS. WITH SUFFICIENT PLANNING, NEW SPECTRUM REQUIREMENTS CAN BE ACCOMMODATED BUT THE ISSUE HAS TO BE ADDRESSED EQUALLY AT INTERNATIONAL, REGIONAL, AND NATIONAL LEVELS, APPROPRIATELY PROTECTING EXISTING AND FUTURE SERVICES.<sup>22</sup>**





**THANK YOU!**

**QUESTIONS?**

**WILLIAM.LUTHER@ASRCMS.COM**