1
00:00:00,506 --> 00:00:03,906
[Music]

2
00:00:04,406 --> 00:00:05,796
NASA Glenn Research Center

3
00:00:05,796 --> 00:00:08,076
and Harris Corporation
have developed,

4
00:00:08,246 --> 00:00:09,396
in a collaborative effort,

5
00:00:10,076 --> 00:00:13,096
the R&D 100 award-winning
product known

6
00:00:13,146 --> 00:00:17,946
as the NASA/Harris Ka-Band
software-defined radio or SDR.

7
00:00:19,266 --> 00:00:22,486
This new technology enables
researchers to develop,

8
00:00:22,676 --> 00:00:26,206
test and demonstrate advanced
communications, networking,

9
00:00:26,206 --> 00:00:30,096
and navigation technologies in
a dynamic space environment.

10
00:00:31,216 --> 00:00:35,626
This is truly the first Ka-Band
software-defined radio operating

11
00:00:35,626 --> 00:00:35,996
in space.

12
00:00:36,066 --> 00:00:40,906
The major benefit of this SDR is
that the radio functionality is

13
00:00:40,906 --> 00:00:43,346
in the software, rather
than in fixed hardware.

14
00:00:43,346 --> 00:00:46,576
As a result, the radio
can be reconfigured,

15
00:00:46,576 --> 00:00:48,996
by uploading new
software, after launch

16
00:00:49,416 --> 00:00:51,426
to accommodate changing
mission needs.

17
00:00:52,526 --> 00:00:55,686
This SDR was integrated into
the Space Communications

18
00:00:55,686 --> 00:00:57,776
and Navigation, or SCaN Testbed,

19
00:00:58,426 --> 00:01:00,646
by a team at the NASA
Glenn Research Center

20
00:01:00,646 --> 00:01:01,526
in Cleveland Ohio.

21
00:01:01,886 --> 00:01:04,136
The SCaN testbed was launched

22
00:01:04,276 --> 00:01:07,576

to the International Space
Station in July 2012.

23
00:01:08,436 --> 00:01:10,376
It operates from
the exterior truss

24
00:01:10,376 --> 00:01:12,696
of the International Space
Station and is the key

25
00:01:12,786 --> 00:01:14,946
to operating an experiments
program

26
00:01:14,946 --> 00:01:18,416
that expands in-space
communications, navigation,

27
00:01:18,476 --> 00:01:20,046
and networking capabilities.

28
00:01:21,166 --> 00:01:24,616
The NASA/Harris SDR and Space
Telecommunications Radio

29
00:01:24,616 --> 00:01:26,986
Standard led to the development

30
00:01:26,986 --> 00:01:29,266
of the Harris AppSTAR
space platform.

31
00:01:29,446 --> 00:01:33,566
This commercial success is
the basis for future products,

32
00:01:33,816 --> 00:01:35,946
all using the digital
signal hardware

33
00:01:35,946 --> 00:01:38,756
and software originally
developed for NASA.

34
00:01:40,596 --> 00:01:44,036
NASA is entering a new and
exciting era of collaboration

35
00:01:44,036 --> 00:01:45,886
with industry and
academic partners.

36
00:01:46,646 --> 00:01:48,306
Many experiments
have been completed,

37
00:01:48,306 --> 00:01:49,336
and others are underway.

38
00:01:50,176 --> 00:01:53,046
There are still opportunities
to partner with NASA to develop

39
00:01:53,046 --> 00:01:56,256
and carry out research
using SDR technologies

40
00:01:56,566 --> 00:01:58,976
in the SCaN Testbed.

41
00:01:59,076 --> 00:02:00,906
Whether on Earth or in space,

42
00:02:02,116 --> 00:02:07,346
the 2013 R&D 100 award-winning
NASA/Harris Ka-Band

43
00:02:07,346 --> 00:02:10,526

software-defined radio
is providing solutions

44
00:02:10,526 --> 00:02:13,216
to complex communications,
networking,