

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC., HTC CORPORATION, AND HTC AMERICA, INC.,
Petitioners,

v.

INVT SPE LLC,
Patent Owner.

Case IPR2018-01555¹ (Patent 7,848,439 B2)
Case IPR2018-01581² (Patent 7,848,439 B2)

Record of Oral Hearing
Held: January 8, 2020

Before THU A. DANG, KEVIN F. TURNER, and BARBARA A. BENOIT,
Administrative Patent Judges.

¹ Apple Inc., who filed a petition in IPR2019-00958, has been joined as a petitioner in IPR2018-01555. Paper 15.

² Apple Inc., who filed a petition in IPR2019-00959, has been joined as a petitioner in IPR2018-01581. Paper 13.

Case IPR2018-01555 (Patent 7,848,439 B2)

Case IPR2018-01581 (Patent 7,848,439 B2)

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The above-entitled matter came on for hearing on Wednesday, January 8, 2020, commencing at 10:00 a.m. at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia.

1 PROCEEDINGS

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3 10:06 a.m.

4 JUDGE BENOIT: Good morning. We are convened today for oral
5 arguments for IPR2018-01555 and IPR2018-01581. Each of which
6 challenges US Patent 7,848,439.

7 I'm Judge Benoit. This is Judge Dang in Alexandria. And where is
8 Judge Turner? He's here by audio?

9 We have Judge Turner now with us visually. And he cannot see the
10 demonstratives. So if you could be sure to name the slide numbers or the
11 particular exhibit you're referring to. Let him catch up with you if you're
12 changing exhibits so that he can follow along. He has of course all the
13 materials.

14 So let's start with appearances, Petitioner.

15 MR. FRANKLIN: Good morning, Your Honor. Darren Franklin of
16 Sheppard Mullin Richter & Hampton for the Petitioner. And with me is my
17 colleague, Eric Gill.

18 JUDGE BENOIT: Welcome.

19 Patent Owner.

20 MR. MORTON: Yes, Your Honor. Cyrus Morton at Robins Kaplan.
21 And with me for Robins Kaplan is John Harting and Mary Pheng, who will
22 be arguing the things later today. And from our client, INVT, Courtney Quish
23 sitting in the back.

24 JUDGE BENOIT: Welcome.

25 Each side will have 60 minutes to argue. Petitioner has the ultimate
26 burden of proving unpatentability and will go first. Both parties, Petitioner

1 and Patent Owner, can use rebuttal time. I'd like to remind the parties
2 however, that rebuttal time should be used to rebut or present an argument.
3 And not to present new arguments.

4 Petitioner, you may begin when ready.

5 MR. FRANKLIN: Thank you, Your Honor. I'd like to reserve 20
6 minutes of rebuttal time if possible.

7 JUDGE BENOIT: All right. Just give me a few minutes to update
8 the request. You may begin when ready.

9 MR. FRANKLIN: Thank you, Your Honor.

10 Presenting is Slide DX-2. This inter partes review involves two
11 grounds of challenge. The first is that Claims 1 through 7 of the '439 patent,
12 are valid over the combination of Li, Vijayan, and Hashem.

13 The second ground is that Claim 8 is obvious over the combination
14 of Li, Vijayan, Hashem, and Cioffi.

15 Turning to slide DX-3. The patented technology involves cellular
16 communications, handsets talking with a base station. The base station talks
17 with handsets. Because multiple handsets may be communicating with a
18 single base station, there needs to be a way to divide up the frequency
19 spectrum among the different handsets.

20 If we turn to DX-4 we'll see Figure 1. It's a prior art slide figure
21 from the '439 patent. And it shows how the frequency spectrum and the
22 time domain can be broken up into individual OFDM symbols so that
23 handsets know how to communicate with the base station.

24 As we can see on the slide, the frequency domain is divided up
25 amongst hundreds of subcarriers. And the time domain is divided up

1 amongst a plurality of time domain symbols. And this is OFDM, orthogonal
2 frequency division multiplexing.

3 Now as you can see on this slide, the channel quality can be different
4 depending upon the frequency and the time. And so in the Applicant's
5 admitted prior art, it is acknowledged that one way to account for this is
6 adaptive modulation and coding, or AMC.

7 So if we turn to slide DX-5 we can see that when channel conditions
8 are good you can use a higher level of modulation and coding to send data at
9 a faster rate from the base station to the handset. When channel conditions
10 are poor, you use lower levels of modulation and coding that send data at a
11 slower rate but have, that are more robust because they have greater
12 repetition in the data.

13 Now if we turn back to slide DX-4 for a moment. You could apply a
14 single modulation and coding scheme to all of the different frequency
15 domain subcarriers. But in the applicant's admitted prior art it was
16 discovered that instead of applying one modulation and coding over all of
17 the different subcarriers, you can instead do it and tailor the modulation
18 coding for individual subcarriers.

19 And that's shown on slide DX-6. On the left side of the slide we see
20 prior art adaptive modulation coding at the subcarrier level. Each subcarrier
21 gets its own modulation and its own coding tailored to the channel
22 conditions on that subcarrier.

23 But in the prior art, it was also recognized that when you do adaptive
24 modulation and coding at the subcarrier level that involves a lot of signaling
25 overhead. Because the base station and the handset have to communicate
26 with each—between each other—as to the specific modulation and coding

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