UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

INVT SPE LLC,
Patent Owner.

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Case IPR2018-01555[1] (Patent 7,848,439 B2)
Case IPR2018-01581[2] (Patent 7,848,439 B2)

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Record of Oral Hearing
Held: January 8, 2020

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

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[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	P R O C E E D I N G S
2	- - - - -
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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