EXHIBIT 2

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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA, SAN JOSE DIVISION

APPLE INC., a California corporation,

Plaintiff,

vs.

SAMSUNG ELECTRONICS CO., LTD., a Korean business entity; SAMSUNG ELECTRONICS AMERICA, INC., a New York corporation; SAMSUNG TELECOMMUNICATIONS AMERICA, LLC, a Delaware limited liability company,

Defendants.

CASE NO. 12-CV-00630-LHK

SAMSUNG DEFENDANTS' AMENDED DISCLOSURE OF ASSERTED CLAIMS AND INFRINGEMENT CONTENTIONS

[PATENT L.R. 3-1, 3-2]

Defendants Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Telecommunications America, LLC (collectively "Samsung") submit this Amended Disclosure of Asserted Claims and Infringement Contentions pursuant to Patent Local Rules 3-1 and 3-2 for U.S. Patent Nos. 7,756,087, 7,551,596, 7,672,470, 7,577,757, 7,232,058, 6,292,179, 6,226,449, and 5,579,239 (the "Samsung patents").

I. IDENTIFICATION OF INFRINGED CLAIMS AND ACCUSED PRODUCTS [PATENT L.R. 3-1(a)-(d)]

On June 15, 2012, Samsung timely served its Disclosure of Asserted Claims and Infringement Contentions (the "Original Disclosure"). On September 21, 2012, Apple released a new product, the iPhone 5, which infringes each of the Samsung patents. Through this amendment, Samsung hereby supplements its Original Disclosure to provide the information required by Patent Local Rule 3-1 subsections (a), (b), (c), and (d) for the iPhone 5 in the following exhibits:

Exhibit A	U.S. Patent No. 7,756,087
Exhibit B	U.S. Patent No. 7,551,596
Exhibit C	U.S. Patent No. 7,672,470
Exhibit D	U.S. Patent No. 7,577,757
Exhibit E	U.S. Patent No. 7,232,058
Exhibit F	U.S. Patent No. 6,292,179
Exhibit G	U.S. Patent No. 6,226,449
Exhibit H	U.S. Patent No. 5,579,239

The amended infringement contentions set forth in the Original Disclosures and Exhibits A–H hereto are exemplary and not exhaustive.

As described in the Original Disclosure and this supplemental amendment thereto, Apple infringes the Samsung patents under 35 U.S.C. § 271(a), (b) and/or (c). Samsung further accuses any other Apple products that Apple is currently developing, making and using including but not limited any newer but unreleased versions of the accused products that have been recently announced by Apple. Accordingly, Samsung reserves its right to further supplement this

disclosure to include any additional Apple products it identifies through discovery and its continuing investigation. Samsung further reserves the right to supplement its disclosure to include any additional information it learns about the accused Apple products through discovery (which is at its earliest stages) and its continuing investigation.

II. LITERAL INFRINGEMENT AND DOCTRINE OF EQUIVALENTS [PATENT L.R. 3-1(e)]

The newly accused Apple product, the iPhone 5, literally infringes the asserted claims of the Samsung patents. To the extent that any element or limitation of the asserted claims is not found to have literal correspondence in the iPhone 5, the iPhone 5 infringes under the doctrine of equivalents.

III. PRIORITY DATES [PATENT L.R. 3-1(f)]

Samsung has already provided the information required by Local Rule 3-1 in its Disclosure of Asserted Claims and Infringement Contentions served on June 15, 2012. Samsung is not amending or supplementing the Priority Date information asserted in that Disclosure at this time.

IV. PRODUCTS PRACTICING THE CLAIMED INVENTIONS [PATENT L.R. 3-1(g)]

Samsung has already provided the information required by Local Rule 3-1 in its Disclosure of Asserted Claims and Infringement Contentions served on June 15, 2012. Samsung is not amending or supplementing the Products Practicing The Claims Inventions information asserted in that Disclosure at this time.

V. APPLE'S WILLFUL INFRINGEMENT [PATENT L.R. 3-1(h)]

Before initiating this lawsuit, Apple was aware that its products infringed many Samsung patents, including patents that Samsung has asserted against Apple in this action. Despite this knowledge, Apple continues to infringe Samsung's patents and continues to act in an objectively reckless manner including, but not limited to, by making, using, selling, offering to sell, and importing the newly released iPhone 5. Apple has willfully infringed at least U.S. Patent Nos. 7,756,087 and U.S. Patent No. 6,292,179 since at least September 2010 when Samsung informed

Apple of its infringement. Apple has willfully infringed the other Samsung patents since at least the filing of Samsung's counterclaims.

VI. DOCUMENT PRODUCTION ACCOMPANYING DISCLOSURE [PATENT L.R. 3-2]

Samsung has already produced documents pursuant to Local Rule 3-2 ("Document Production Accompanying Disclosure") concurrently with the service of its Disclosure of Asserted Claims and Infringement Contentions on June 15, 2012. Samsung is not supplementing that production at this time.

DATED: September 28, 2012

QUINN EMANUEL URQUHART & SULLIVAN LLP

By /s/ Patrick M. Shields
Patrick M. Shields
Attorneys for Defendants
SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC. and
SAMSUNG TELECOMMUNICATIONS
AMERICA, LLC

EXHIBIT A

SAMSUNG'S AMENDED PATENT L.R. 3-1(A)-(D) DISCLOSURES FOR U.S. PATENT NO. 7,756,087

ASSERTED CLAIM (PATENT L.R. 3-1(A))	ACCUSED INSTRUMENTALITY AND HOW EACH ELEMENT IS MET BY ACCUSED INSTRUMENTALITY (PATENT L.R. 3-1(B)-(D))[1]
1. A method for performing non-scheduled transmission in a user equipment (UE) of a mobile communication system for supporting an enhanced uplink dedicated channel (E-DCH), comprising the steps of: [a] receiving non-scheduled transmission information indicating k transmission time intervals (TTIs) for transmitting non-scheduled data via the E-DCH, wherein non-scheduled transmissions can be performed during	The iPhone 5[2] performs the claimed method for performing non-scheduled transmission in a user equipment (UE) of a mobile communication system for supporting an enhanced uplink dedicated channel (E-DCH). The iPhone 5 meets the HSPA+ standard as set forth in 3GPP TS 25.321 v. 7.0.0 or later. *See, e.g.,* iPhone 5 technical specifications available at http://www.apple.com/iphone/specs.html: • GSM model A1428*: UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz); GSM/EDGE (850, 900, 1800, 1900 MHz); LTE (Bands 4 and 17) • CDMA model A1429*: CDMA EV-DO Rev. A and Rev. B (800, 1900, 2100 MHz); UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz); GSM/EDGE (850, 900, 1800, 1900 MHz); LTE (Bands 1, 3, 5, 13, 25) • GSM model A1429*: UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz); GSM/EDGE (850, 900, 1800, 1900 MHz); LTE (Bands 1, 3, 5) • 802.11a/b/g/n Wi-Fi (802.11n 2.4GHz and 5GHz) • Bluetooth 4.0 wireless technology The iPhone 5 performs the step of receiving non-scheduled transmission information indicating k transmission time intervals (TTIs) for transmitting non-scheduled data via the E-DCH, wherein non-scheduled transmissions can be performed during the k TTIs within a period having N TTIs. For example, a period N is defined in the HSPA standard as an integer between 1 and 8 and, as shown in the table below, k

[1] The iPhone 5 comprises a baseband processor. *See, e.g.,* ifixit iPhone 5 Teardown available at http://www.ifixit.com/Teardown/iPhone-5-Teardown/10525/1. Samsung reserves the right to supplement this response with additional information obtained through Apple and third party discovery.

[2] These infringement contentions demonstrates the operation of the iPhone 5 supporting HSPA+. Previously accused devices (as identified in Samsung's original infringement contentions that were served on June 15, 2012) that support HSPA or HSUPA operate in substantially the same way.

<table>
<tr>
<td>the k TTIs within a period having N TTIs;</td>
<td>transmission time intervals (TTIs) are represented as bits set to “1” in the Information Element “2ms non-scheduled transmission grant HARQ process allocation.”

This information is received by the user equipment pursuant to the standard. A transmission time interval may be, for example, 2ms.

See, e.g., 3GPP TS 25.331 v. 7.0.0 § 10.3.5.1b (emphasis added):[3]

10.3.5.1b Added or reconfigured E-DCH MAC-d flow

This IE is used in relation to MAC-d flows mapped to the E-DCH transport channel.
<table>
<tr><th>Information Element/Group name</th><th>Need</th><th>Multi</th><th>Type and reference</th><th>Semantics description</th><th>Version</th></tr>
<tr><td>E-DCH MAC-d flow identity</td><td>MP</td><td></td><td>E-DCH MAC-d flow identity 10.3.5.7e</td><td></td><td>REL-6</td></tr>
<tr><td>E-DCH MAC-d flow power offset</td><td>OP</td><td></td><td>Integer(0..6)</td><td>Only allowed to be absent when already defined for this E-DCH MAC-d flow, unit is dB</td><td>REL-6</td></tr>
<tr><td>E-DCH MAC-d flow maximum number of retransmissions</td><td>OP</td><td></td><td>Integer (0..15)</td><td>Only allowed to be absent when already defined for this E-DCH MAC-d flow</td><td>REL-6</td></tr>
<tr><td>E-DCH MAC-d flow multiplexing list</td><td>OP</td><td></td><td>Bitstring (maxE-DCHMACdFlow)</td><td>Indicates, if this is the first MAC-d flow for which PDUs are placed in the MAC-e PDU, the other MAC-d flows from which MAC-d PDUs are allowed to be included in the same MAC-e</td><td>REL-6</td></tr>
</table>
</td>
</tr>
</table>

[3] Corresponding disclosure may also be found in earlier versions of 3GPP TS 25.331.

						PDU. Bit 0 is for MAC-d flow 0, Bit 1 is for MAC-d flow 1, … Value '1' for a bit means multiplexing is allowed. Bit 0 is the first/leftmost bit of the bit string. NOTE: The bit that corresponds to the MAC-d flow itself is ignored.		
		CHOICE transmission grant type	OP			Only allowed to be absent when already defined for this E-DCH MAC-d flow	REL-6	
		>Non-scheduled transmission grant info					REL-6	
		>>Max MAC-e PDU contents size	MP		Integer (1..19982)		REL-6	
		>>2ms non-scheduled transmission grant HARQ process allocation	MD		Bitstring (8)	MAC-d PDUs for this MAC-d flow are only allowed to be transmitted in those processes for which the bit is set to “1”. Bit 0 corresponds to HARQ process 0, bit 1 corresponds to HARQ process 1,… Default value is: transmission in all HARQ processes is allowed. Bit 0 is the first/leftmost bit of the bit string.	REL-6	

	>Scheduled transmission grant info | | | NULL | | REL-6 Apple infringes this claim because it has performed each and every step of this claim, including but not limited to testing and use by its employees or agents. Apple also infringes this claim by selling the iPhone 5 to customers and encouraging those customers to use the products in a manner that meets each and every step of this claim.
[b] and transmitting data on at least one TTI of the k TTIs within the period; wherein the parameter k is an integer greater than 0 and less than or equal to a positive integer N.	The iPhone 5 performs the step of transmitting data on at least one TTI of the k TTIs within the period, wherein the parameter k is an integer greater than 0 and less than or equal to a positive integer N. For example, as defined in the HSPA standard, the iPhone 5 transmits data during one or more (k) TTIs, within a period of N TTIs. N corresponds, for example, to eight, the number of bits in the Bitstring (8), and the Bitstring (8) refers to '2ms non-scheduled transmission grant HARQ process allocation.' *See, e.g.,* 3GPP TS 25.331 v. 7.0.0 § 10: 10.2.33 RADIO BEARER SETUP This message is sent by UTRAN to the UE to establish new radio bearer(s). It can also include modifications to the configurations of transport channels and/or physical channels. RLC-SAP: AM or UM Logical channel: DCCH Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Message Type	MP		Message Type		
[...]					
RB Information Elements					
CHOICE specification mode	MP				REL-6
>Complete specification					REL-6
[...]					
TrCH Information Elements					

Uplink transport channels					
[...]					
>>Added or Reconfigured TrCH information list	OP	1 to <maxTrCH>			
>>>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2		
[...]					

10.3.5.2 Added or Reconfigured UL TrCH information

Information Element/Group name	**Need**	**Multi**	**Type and reference**	**Semantics description**	**Version**
[...]					
UL Transport channel identity	MP		Transport channel identity 10.3.5.18		
	CV-NotE-DCH				REL-6
CHOICE *UL parameters*					REL-6
>DCH,USCH					REL-6
>>TFS	MP		Transport Format Set 10.3.5.23		
>E-DCH					REL-6
>>E-DCH Transmission Time Interval	MP		Integer(2,10)	Unit is ms.	REL-6
>>HARQ info for E-DCH	MP		10.3.5.7d		REL-6
>>Added or reconfigured E-DCH MAC-d flow list	OP	<1 to maxE-DCHMACdFlow>			REL-6
>>>Added or reconfigured E-DCH MAC-d flow	MP		Added or reconfigured E-DCH MAC-d flow 10.3.5.1b		REL-6

Note 1: If included in System Information Block Type 16, the values 'E-DCH' does not apply for the IE "Uplink transport channel type".

2. The method of claim 1, wherein the non-scheduled transmission information is configured by a bit map of N bits indicating the k TTIs using specific bit values.

The iPhone 5 performs the method of claim 1, wherein the non-scheduled transmission information is configured by a bit map of N bits indicating the k TTIs using specific bit values. The TTIs are indicated using a bitstring as defined in the standard.

See Claim 1*; see also, e.g.,* 3GPP TS 25.331 v. 7.0.0 § 10.3.5 (emphasis added):

10.3.5.1b Added or reconfigured E-DCH MAC-d flow

This IE is used in relation to MAC-d flows mapped to the E-DCH transport channel.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
E-DCH MAC-d flow identity	MP		E-DCH MAC-d flow identity 10.3.5.7e		REL-6
E-DCH MAC-d flow power offset	OP		Integer(0..6)	Only allowed to be absent when already defined for this E-DCH MAC-d flow, unit is dB	REL-6
E-DCH MAC-d flow maximum number of retransmissions	OP		Integer (0..15)	Only allowed to be absent when already defined for this E-DCH MAC-d flow	REL-6
E-DCH MAC-d flow multiplexing list	OP		Bitstring (maxE-DCHMACdFlow)	Indicates, if this is the first MAC-d flow for which PDUs are placed in the MAC-e PDU, the other MAC-d flows from which MAC-d PDUs are allowed to be included in the same MAC-e PDU. Bit 0 is for MAC-d flow 0, Bit 1 is for	REL-6

						MAC-d flow 1, … Value '1' for a bit means multiplexing is allowed. Bit 0 is the first/leftmost bit of the bit string. NOTE: The bit that corresponds to the MAC-d flow itself is ignored.	
		CHOICE transmission grant type	OP			Only allowed to be absent when already defined for this E-DCH MAC-d flow	REL-6
		>Non-scheduled transmission grant info					REL-6
		>>Max MAC-e PDU contents size	MP		Integer (1..19982)		REL-6
		>>2ms non-scheduled transmission grant HARQ process allocation	MD		Bitstring (8)	MAC-d PDUs for this MAC-d flow are only allowed to be transmitted in those processes for which the bit is set to “1”. Bit 0 corresponds to HARQ process 0, bit 1 corresponds to HARQ process 1,… Default value is: transmission in all HARQ processes is allowed. Bit 0 is the first/leftmost bit of the bit string.	REL-6
		>Scheduled transmission grant info			NULL		REL-6

	3GPP TS 25.321 v. 7.0.0 § 11.8.1.4 (emphasis added): 11.8.1.4. E-TFC Selection … The HARQ process ID for the upcoming transmission is determined using the following formulae: - For 2ms TTI: CURRENT_HARQ_PROCESS_ID = [5*CFN + subframe number] mod HARQ_RTT - For 10ms TTI: CURRENT_HARQ_PROCESS_ID = [CFN] mod HARQ_RTT Based on this current HARQ process ID and the RRC configuration, the UE shall determine whether to take the scheduled and non-scheduled grants into account in the upcoming transmission. 3GPP TS 25.331 v. 7.0.0 § 8.6.5.18 (emphasis added): 8.6.5.18 Added or reconfigured E-DCH MAC-d flow If the IE "Added or reconfigured E-DCH MAC-d flow" is included, the UE shall: … 1> if the IE "Non-scheduled transmission grant info" is included: 2> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled transmission grant HARQ process allocation" is configured for this MAC-d flow: 3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission grant HARQ process allocation", with a total contribution from this MAC-d flow not exceeding the size as signalled by the IE "Max MAC-e PDU contents size". 2> else: 3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall be included in a MAC-e PDU transmitted by any HARQ process, with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size". 3GPP TS 25.331 v. 7.0.0 § 10.3.5.1b (emphasis added):

	10.3.5.1b Added or reconfigured E-DCH MAC-d flow (Information element) 2ms non-scheduled transmission grant HARQ process allocation: (Semantics description) MAC-d PDUs for this MAC-d flow are only allowed to be transmitted in those processes for which the bit is set to "1". Bit 0 corresponds to HARQ process 0, bit 1 corresponds to HARQ process 1,… Default value is: transmission in all HARQ processes is allowed. Bit 0 is the first/leftmost bit of the bit string. 3GPP TS 25.321 v. 7.0.0 § 11.8.1.4 (emphasis added): 11.8.1.4. E-TFC Selection RRC can allocate non-scheduled transmission grants to individual MAC-d flows in order to reduce the transmission delays. When a 2ms TTI is configured each non-scheduled grant is applicable to the specific set of HARQ processes indicated by RRC. The applicability of scheduled grants can be also restricted to a specific set of HARQ processes when a 2ms TTI is configured. HARQ process restriction and reservation is under the control of the serving cell Node B and indicated to the UE by RRC. Apple infringes this claim because it has performed each and every step of this claim, including but not limited to through testing and use by its employees. Apple also infringes this claim by selling iPhone 5 to customers and encouraging those customers to use the products in a manner that meets each and every step of this claim.
6. The method of claim 1, wherein the step of transmitting the data comprises the step of: transmitting the data within a data rate allowed by a radio network controller (RNC) on at least one of the k TTIs.	The iPhone 5 performs the method of claim 1, wherein the step of transmitting the data comprises transmitting the data within a data rate allowed by a radio network controller (RNC) on at least one of the k TTIs. *See* claim 1. The Information Elements (IEs) defined in TS 25.331 for the RRC layer are sent by a RNC to the UE. The IE 'Max MAC-e PDU contents size' corresponds to a data rate as claimed because the IE is related to the maximum number of bits that can be transmitted during a TTI. There is only one MAC-e PDU during a TTI. 3GPP TS 25.321 v. 7.0.0 § 9:

9.1.5 MAC PDU (E-DCH)

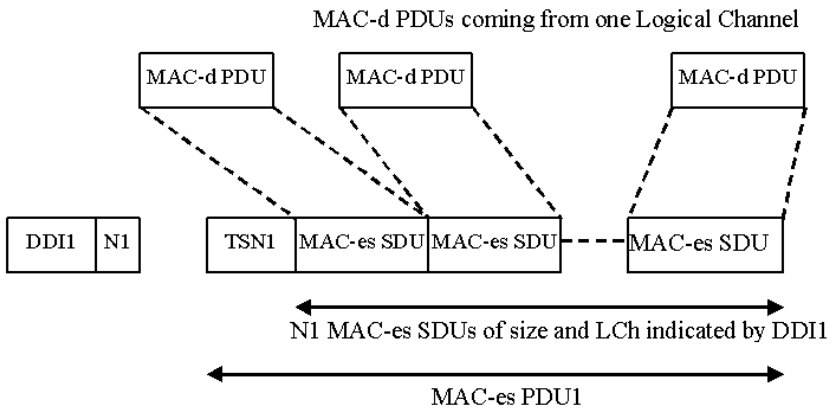


Figure 9.1.5.1 MAC-es PDU

Figure 9.1.5.1 MAC-es PDU

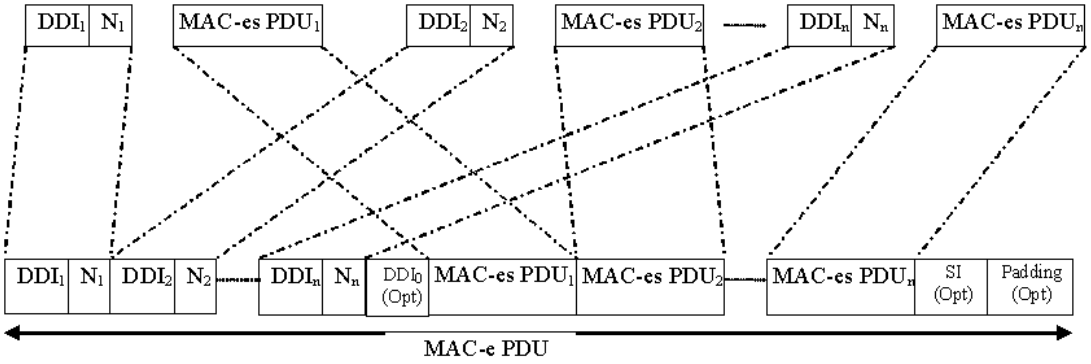


Figure 9.1.5.2a: MAC-e PDU

3GPP TS 25.331 v. 7.0.0 § 8.6.5.18 (emphasis added):

1> if the IE "Non-scheduled transmission grant info" is included:

2> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled transmission grant HARQ process allocation" is configured for this MAC-d flow:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission grant HARQ process allocation", with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

3GPP TS 25.331 v. 7.0.0 § 10.3.5.1b (emphasis added):

10.3.5.1b Added or reconfigured E-DCH MAC-d flow

This IE is used in relation to MAC-d flows mapped to the E-DCH transport channel.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
>Non-scheduled transmission grant info					REL-6
>>Max MAC-e PDU contents size	MP		Integer (1..19982)		REL-6
>>2ms non-scheduled transmission grant HARQ process allocation	MD		Bitstring (8)	MAC-d PDUs for this MAC-d flow are only allowed to be transmitted in those processes for which the bit is set to "1". Bit 0 corresponds to HARQ process 0, bit 1 corresponds to HARQ process 1,… Default value is:	REL-6

				transmission in all HARQ processes is allowed. Bit 0 is the first/leftmost bit of the bit string.	
>Scheduled transmission grant info			NULL		REL-6

3GPP TS 25.321 v. 7.0.0 § 4 (emphasis added):

4.2.3.4 MAC-e/es entity – UE Side

Multiplexing and TSN setting:

The multiplexing and TSN setting entity is responsible for concatenating multiple MAC-d PDUs into MAC-es PDUs, and to multiplex one or multiple MAC-es PDUs into a single MAC-e PDU, to be transmitted in the next TTI, as instructed by the E-TFC selection function.

3GPP TS 25.331 v. 7.0.0 § 10 (emphasis added):

Title: Radio Resource Control (RRC) Protocol Specification

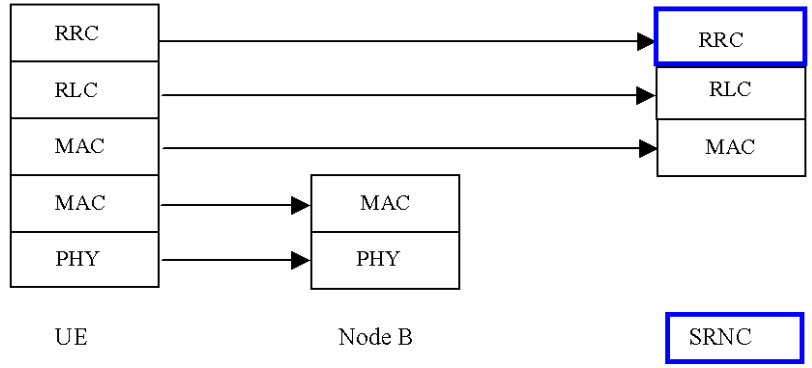
10.2.33 RADIO BEARER SETUP

This message is sent by UTRAN to the UE to establish new radio bearer(s). It can also include modifications to the configurations of transport channels and/or physical channels.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

	3GPP TS 25.301 v. 7.0.0 § X: 5.6.10.3 Protocol termination The protocol termination points for E-DCH in the control and user planes are presented in figure 5.6.10.3-1 and figure 5.6.10.3-2, respectively.  **Figure 5.6.10.3-1: Protocol termination points for E-DCH, control plane** Apple infringes this claim because it has performed each and every step of this claim, including but not limited to through testing and use by its employees. Apple also infringes this claim by selling iPhone 5 to customers and encouraging those customers to use the products in a manner that meets each and every step of this claim.

7. The method of claim 1, wherein the step of transmitting the data comprises the steps of: [a] computing a non-scheduled transmission determination value according to a connection frame number (CFN) for generating a frame to be used in communication with a Node B accessed by the UE and a subframe number;	The iPhone 5 performs the method of claim 1, wherein the step of transmitting the data comprises computing a non-scheduled transmission determination value according to a connection frame number (CFN) for generating a frame to be used in communication with a Node B accessed by the UE and a subframe number. *See* Claim 1; *see also, e.g.*, 3GPP TS 25.321 v. 7.0.0 § 11: 11.8 Control of E-DCH transmission and reception 11.8.1 UE operation 11.8.1.1 HARQ Operation 11.8.1.1.1 HARQ entity There is one HARQ entity at the UE. A number of parallel HARQ processes are used in the UE to support the HARQ entity, allowing transmissions to take place continuously while waiting for the feedback on the successful or unsuccessful reception of previous transmissions. At a given TTI, the HARQ entity identifies the HARQ process for which a transmission should take place. Also, based on the timing, it routes the receiver feedback (ACK/NACK information), relayed by the physical layer, to the appropriate HARQ process. The number of HARQ processes is equal to the HARQ round-trip-time (HARQ_RTT). The HARQ_RTT is equal to 4 for 10ms TTI and 8 for 2ms TTI. The TTI duration shall be configured by the higher layers. Each process is associated with a number from 0 to HARQ_RTT-1. [...] 11.8.1.4 E-TFC Selection [...] At each TTI boundary, UEs in CELL_DCH state with an E-DCH transport channel configured shall determine the state of each E-TFC for every MAC-d flow configured based on its required transmit power versus the maximum UE transmit power (see [7] and [12]). If no DCH transport channel is configured or if a DCH transport channel is configured and the selected TFC is "empty" (see

[3]), the UE shall consider that E-TFCs included in the minimum set of E-TFCs are always in supported state (see [7]).

At every TTI boundary for which a new transmission is requested by the HARQ entity (see subclause 11.8.1.1.1), the UE shall perform the operations described below. UEs configured both with DCH and E-DCH transport channels shall perform TFC selection before performing E-TFC selection.

The Serving Grant Update function provides the E-TFC selection function with the maximum E-DPDCH to DPCCH power ratio that the UE is allowed to allocate for the upcoming transmission for scheduled data (held in the Serving Grant state variable – see subclause 11.8.1.3).

[...]

The HARQ process ID for the upcoming transmission is determined using the following formulae:

- For 2ms TTI: CURRENT_HARQ_PROCESS_ID = [5*CFN + subframe number] **mod** HARQ_RTT
- For 10ms TTI: CURRENT_HARQ_PROCESS_ID = [CFN] **mod** HARQ_RTT

Based on this current HARQ process ID and the RRC configuration, the UE shall determine whether to take the scheduled and non-scheduled grants into account in the upcoming transmission. If they are not supposed to be taken into account, then the corresponding grant shall be assumed to not exist. If the variable Serving_Grant has the value "Zero_Grant" after the Serving Grant Update, then the Serving Grant shall not be taken into account in the upcoming transmission.

The above two equations are identical to equations (1) and (2) in '087 patent:

Non-scheduled Transmission Determination Value 2ms TTI = TTI Number mod N = (CFNx5+Subframe Number) mod N.....Equation (2)

Non-scheduled Transmission Determination Value 10ms TTI = CFN mod N.....Equation (1)

The value CURRENT_HARQ_PROCESS_ID in the standard is the "Non-scheduled Transmission Determination Value in the '087 patent. The value HARQ_RTT in the standard is "N" in the '087 patent.

3GPP TS 25.331 v. 7.0.0 § 8:

8.5.15.1 Initialisation for CELL_DCH state after state transition

When the UE receives any of the messages causing the UE to perform a state transition to CELL_DCH, the UE shall set the CFN in relation to the SFN of the first radio link listed in the IE "Downlink information per radio link list" included in that message according to the following formula:

	- for FDD: CFN = (SFN - (DOFF div 38400)) mod 256 where the formula gives the CFN of the downlink DPCH or F-DPCH frame which starts at the same time as or which starts during the PCCPCH frame with the given SFN. DOFF is determined according to subclause 8.6.6.14. Definition from 3GPP TS 21.905 v. 9.1.0 § 4: CFN Connection Frame Number Apple infringes this claim because it has performed each and every step of this claim, including but not limited to testing and use by its employees or agents. Apple also infringes this claim by selling iPhone 5 to customers and encouraging those customers to use the products in a manner that meets each and every step of this claim.
[b] and transmitting the data in TTIs in which non-scheduled transmission determination values correspond to values of the k TTIs.	The iPhone 5 performs the step of transmitting the data in TTIs in which non-scheduled transmission determination values correspond to values of the k TTIs. *See* 7[a].
8. The method of claim 7, wherein the non-scheduled transmission determination value is computed by (CFN*n+Subframe Number)mod N, where a TTI size of the E-DCH is 1/n of a frame length.	The iPhone 5 performs the method of claim 7, wherein the non-scheduled transmission determination value is computed by (CFN*n+Subframe Number)mod N, where a TTI size of the E-DCH is 1/n of a frame length. *See* Claim 7; *see also, e.g.,* 3GPP TS 25.321 v. 7.0.0 § 11.8.1.4: 11.8.1.4 E-TFC Selection [...] The HARQ process ID for the upcoming transmission is determined using the following formulae:

	- For 2ms TTI: CURRENT_HARQ_PROCESS_ID = [5*CFN + subframe number] **mod** HARQ_RTT - For 10ms TTI: CURRENT_HARQ_PROCESS_ID = [CFN] **mod** HARQ_RTT Based on this current HARQ process ID and the RRC configuration, the UE shall determine whether to take the scheduled and non-scheduled grants into account in the upcoming transmission. Apple infringes this claim because it has performed each and every step of this claim, including but not limited to testing and use by its employees or agents. Apple also infringes this claim by selling iPhone 5 to customers and encouraging those customers to use the products in a manner that meets each and every step of this claim.
9. An apparatus for performing non-scheduled transmission in a user equipment (UE) of a mobile communication system for supporting an enhanced uplink dedicated channel (E-DCH), comprising: [a] a receiver receiving non-scheduled transmission information indicating k transmission time intervals (TTIs) for transmitting non-scheduled data via the E-DCH, wherein non-scheduled transmissions can be performed during the k TTIs within a	The iPhone 5 is an apparatus for performing non-scheduled transmission in a user equipment (UE) of a mobile communication system for supporting an enhanced uplink dedicated channel (E-DCH). *See* Claim 1. The iPhone 5 comprises a receiver receiving non-scheduled transmission information indicating k transmission time intervals (TTIs) for transmitting non-scheduled data via the E-DCH, wherein non-scheduled transmissions can be performed during the k TTIs within a period having N TTIs. *See* Claim 1[a].

period having N TTIs;	
[b] and a transmitter transmitting data on at least one TTI of the k TTIs within the period; wherein the k is an integer greater than 0 and less than or equal to a positive integer N.	The iPhone 5 comprises a transmitter transmitting data on at least one TTI of the k TTIs within the period; wherein the k is an integer greater than 0 and less than or equal to a positive integer N. *See* Claim 1[b].
10. The apparatus of claim 9, wherein the non-scheduled transmission information is configured by a bit map of N bits indicating the k TTIs using specific bit values.	The iPhone 5 comprises the apparatus of claim 9, wherein the non-scheduled transmission information is configured by a bit map of N bits indicating the k TTIs using specific bit values. *See* Claims 9 and 2.
14. The apparatus of claim 9, wherein the transmitter transmits the data within a data rate allowed by a radio network controller (RNC) on at least one TTI of the k TTIs.	The iPhone 5 comprises the apparatus of claim 9, wherein the transmitter transmits the data within a data rate allowed by a radio network controller (RNC) on at least one TTI of the k TTIs. *See* Claims 9 and 6.
15. The apparatus of claim 9, wherein the transmitter computes a	The iPhone 5 comprises the apparatus of claim 9, wherein the transmitter computes a non-scheduled transmission determination value according to a connection frame number (CFN) for generating a frame to be used in communication with a Node B accessed by the UE and a subframe number, and transmits the data

non-scheduled transmission determination value according to a connection frame number (CFN) for generating a frame to be used in communication with a Node B accessed by the UE and a subframe number, and transmits the data in TTIs in which non-scheduled transmission determination values correspond to values of the k TTIs.	in TTIs in which non-scheduled transmission determination values correspond to values of the k TTIs. *See* Claims 9 and 7; *see also, e.g.*, 3GPP TS 25.321 v. 7.0.0 § 11 and 3GPP TS 25.331 v. 7.0.0 § 8 cited in Claim 7.
16. The apparatus of claim 15, wherein the non-scheduled transmission determination value is computed by (CFN*n+Subframe Number)mod N, where a TTI size of the E-DCH is 1/n of a frame length.	The iPhone 5 comprises the apparatus of claim 15, wherein the non-scheduled transmission determination value is computed by (CFN*n+Subframe Number)mod N, where a TTI size of the E-DCH is 1/n of a frame length. *See* Claims 15 and 8; *see also, e.g.,* 3GPP TS 25.321 v. 7.0.0 § 11.8.1.4 cited in Claim 8.
34. An apparatus for transmitting uplink data in user equipment (UE) of a mobile communication system	The iPhone 5 is an apparatus for transmitting uplink data in user equipment (UE) of a mobile communication system for supporting an enhanced uplink dedicated channel (E-DCH). The iPhone 5 comprises a receiver receiving at least one of scheduling assignment information generated by the Node B based on a scheduling information and non-scheduled transmission information indicating k

for supporting an enhanced uplink dedicated channel (E-DCH), comprising: a receiver receiving at least one of scheduling assignment information generated by the Node B based on a scheduling information and non-scheduled transmission information indicating k transmission time intervals (TTIs) for transmitting non-scheduled data via the E-DCH within a period having N TTIs; a controller selecting a Node B controlled scheduling mode or an non-scheduled transmission mode to transmit data; and a transmitter transmitting uplink data according to the scheduling assignment information in the Node B controlled scheduling mode, and transmitting uplink data	transmission time intervals (TTIs) for transmitting non-scheduled data via the E-DCH within a period having N TTIs, a controller selecting a Node B controlled scheduling mode or an non-scheduled transmission mode to transmit data, and a transmitter transmitting uplink data according to the scheduling assignment information in the Node B controlled scheduling mode, and transmitting uplink data on at least one TTI of the k TTIs within the period in the non-scheduled transmission mode, wherein the parameter k is an integer greater than 0, and less than or equal to a positive integer N. *See* claim 1. The RRC S/W block in the iPhone 5 receives IE "Non-scheduled transmission grant info" or IE "Scheduled transmission grant info," and selects a Node B controlled scheduling mode or a non-scheduled transmission mode to transmit data based on the IEs. *See* Claim 1; *see also, e.g,* 3GPP TS 25.331 v. 7.0.0 § 11 (emphasis added): [for FDD:] 1> if the IE "Non-scheduled transmission grant info" is included: 2> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled transmission grant HARQ process allocation" is configured for this MAC-d flow: 3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission grant HARQ process allocation", with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size". 2> else: 3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall be included in a MAC-e PDU transmitted by any HARQ process, with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size". 1> if the IE "Scheduled transmission grant info" is included: 2> transmission of MAC-d PDU's for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH/E-RGCH (see [15]).

on at least one TTI of the k TTIs within the period in the non-scheduled transmission mode; wherein the parameter k is an integer greater than 0, and less than or equal to a positive integer N.	
35. The apparatus of claim 34, wherein the non-scheduled transmission information is configured by a bit map of N bits indicating the k TTIs using specific bit values.	Each of the iPhone 5 comprises the apparatus of claim 34, wherein the non-scheduled transmission information is configured by a bit map of N bits indicating the k TTIs using specific bit values. *See* claim 34. The non-scheduled transmission information in the iPhone 5 is configured by a bit map of N bits indicating the k TTIs using specific bit values. The TTIs are indicated using a bitstring as defined in the standard. *See* Claims 35 and 2; *see also, e.g.,* 3GPP TS 25.331 v. 7.0.0 § 10.3.5.1b and 3GPP TS 25.321 v. 7.0.0 § 11.8.1.4, cited in claim 2.
39. The apparatus of claim 34, wherein the transmitter computes a non-scheduled transmission determination value according to a connection frame number (CFN) for generating a frame to be used in communication with a Node B accessed by the UE and a	The iPhone 5 comprises the apparatus of claim 34, wherein the transmitter computes a non-scheduled transmission determination value according to a connection frame number (CFN) for generating a frame to be used in communication with a Node B accessed by the UE and a subframe number, and transmits the data in TTIs in which non-scheduled transmission determination values correspond to values of the k TTIs. *See* Claims 34 and 7; *see also, e.g.,* claim 34**;** 3GPP TS 25.321 v. 7.0.0 § 11 and 3GPP TS 25.331 v. 7.0.0 § 8 as cited in claim 7.

subframe number, and transmits the data in TTIs in which non-scheduled transmission determination values correspond to values of the k TTIs.	
40. The apparatus of claim 39, wherein the non-scheduled transmission determination value is computed by (CFN*n+Subframe Number)mod N, where a TTI size of the E-DCH is 1/n of a frame length.	The iPhone 5 comprises the apparatus of claim 39, wherein the non-scheduled transmission determination value is computed by (CFN*n+Subframe Number)mod N, where a TTI size of the E-DCH is 1/n of a frame length. *See* Claims 39 and 8; *see also, e.g.*, 3GPP TS 25.321 v. 7.0.0 § 11 as cited in claim 8.

EXHIBIT B

SAMSUNG'S AMENDED PATENT L.R. 3-1(A)-(D) DISCLOSURES FOR U.S. PATENT NO. 7,551,596

ASSERTED CLAIM (PATENT L.R. 3-1(A))	ACCUSED INSTRUMENTALITY AND HOW EACH ELEMENT IS MET BY ACCUSED INSTRUMENTALITY (PATENT L.R. 3-1(B)-(D))[1]
1. A method for transmitting control information for an uplink packet data service in a mobile communication system, the method comprising the steps of: [a] forming a first protocol data unit (PDU) including uplink packet data;	The iPhone 5[2] performs the claimed method for transmitting control information for an uplink packet data service in a mobile communication system. *See, e.g.,* iPhone 5 technical specifications available at http://www.apple.com/iphone/specs.html: • GSM model A1428*: UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz); GSM/EDGE (850, 900, 1800, 1900 MHz); LTE (Bands 4 and 17) • CDMA model A1429*: CDMA EV-DO Rev. A and Rev. B (800, 1900, 2100 MHz); UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz); GSM/EDGE (850, 900, 1800, 1900 MHz); LTE (Bands 1, 3, 5, 13, 25) • GSM model A1429*: UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz); GSM/EDGE (850, 900, 1800, 1900 MHz); LTE (Bands 1, 3, 5) • 802.11a/b/g/n Wi-Fi (802.11n 2.4GHz and 5GHz) • Bluetooth 4.0 wireless technology  

[1] The iPhone 5 comprises a baseband processor. *See, e.g.,* ifixit iPhone 5 Teardown available at http://www.ifixit.com/Teardown/iPhone-5-Teardown/10525/1. Samsung reserves the right to supplement this response with additional information obtained through Apple and third party discovery.

[2] These infringement contentions demonstrates the operation of the iPhone 5 supporting HSPA+. Previously accused devices (as identified in Samsung's original infringement contentions that were served on June 15, 2012) that support HSPA or HSUPA operate in substantially the same way.

The iPhone 5 meets the HSPA+ standard as set forth in 3GPP TS 25.321 v. 7.0.0 or later. The iPhone 5 performs the step of forming a first protocol data unit (PDU) including uplink packet data. Pursuant to the standard, MAC-d PDU includes uplink packet data.

See, e.g., 3GPP TS 25.321 v. 7.0.0 § 9.1.5:[3]

9.1.5 MAC PDU (E-DCH)

In the case of E-DCH there are two MAC sublayers, MAC-e and MAC-es. MAC-es sits on top of MAC-e and receives PDUs directly from MAC-d. MAC-es SDUs (i.e. MAC-d PDUs) of the same size, coming from a particular logical channel are multiplexed together into a single MAC-es payload. There is one and only one MAC-es PDU per logical channel per TTI (since only one MAC-d PDU size is allowed per logical channel per TTI). To this payload is prepended the MAC-es header (see subclause 9.2.4.1). The number of PDUs, as well as the one DDI value identifying the logical channel, the MAC-d flow and the MAC-es SDU size are included as part of the MAC-e header. In case sufficient space is left in the E-DCH transport block or if Scheduling Information needs to be transmitted, an SI will be included at the end of the MAC-e PDU (see subclause 9.2.4.2). Multiple MAC-es PDUs from multiple logical channels, but only one MAC-e PDU can be transmitted in a TTI.

In the example MAC-e PDU shown in figure 9.1.5.2a, the field DDI_0 is referring to the specific DDI value that indicates that there is an SI included in the MAC-e PDU (see subclause 9.2.4.2). This header will not be associated with a new MAC-es payload. Figure 9.1.5.2b shows the MAC-e PDU format when SI is sent alone. In this case DDI_0 is not included in the MAC-e PDU and E-TFCI index 0 is used.

Error! Objects cannot be created from editing field codes.

Figure 9.1.5.1 MAC-es PDU

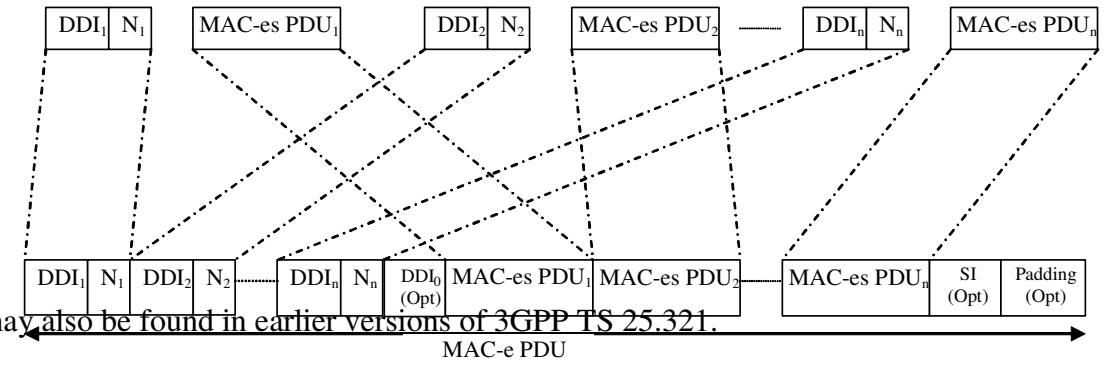
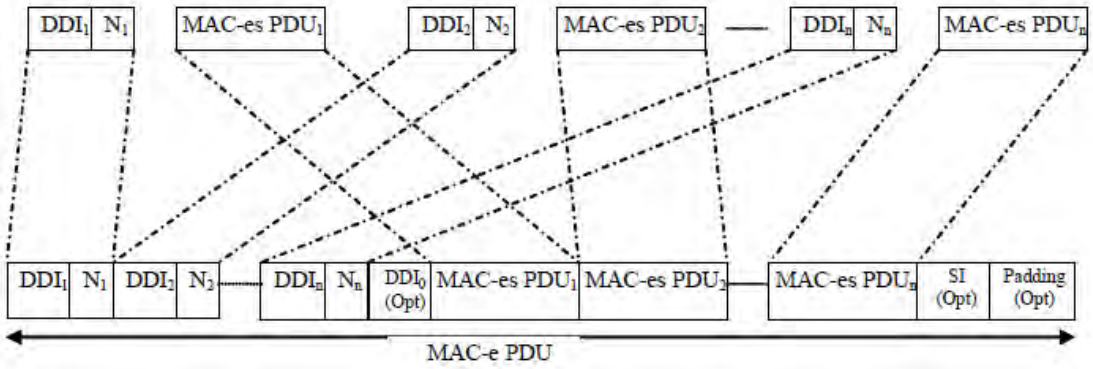


Figure 9.1.5.2a: MAC-e PDU

Apple infringes this claim because it has performed each and every step of this claim,

[3] Corresponding disclosure may also be found in earlier versions of 3GPP TS 25.321.

	 **Figure 9.1.5.2a : MAC-e PDU** Apple infringes this claim because it has performed each and every step of this claim, including but not limited to testing and use by its employees or agents. Apple also infringes this claim by selling the iPhone 5 to customers and encouraging those customers to use the products in a manner that meets each and every step of this claim.
[b] forming a control service data unit (SDU) including control information for an uplink packet data service;	The iPhone 5 performs the step of forming a control service data unit (SDU) including control information for an uplink packet data service. Control information includes, for example, scheduling information ("SI") as shown in figure 9.1.5.2. *See* 1[a]; *see also, e.g.,* 3GPP TS 25.321 v. 7.0.0 § 9: 9.1.1 General A MAC PDU is a bit string, with a length not necessarily a multiple of 8 bits. In the drawings in clause 9.1, bit strings are represented by tables in which the first bit is the leftmost one on the first line of the table, the last bit is the rightmost on the last line of the table, and more generally the bit string is to be read from left to right and then in the reading order of the lines. Depending on the provided service, MAC SDUs are bit strings with any non-null length, or bit strings with an integer number of octets in length. An SDU is included into a MAC PDU from first bit onward. In the UE for the uplink, all MAC PDUs delivered to the physical layer within one TTI are defined as Transport Block Set (TBS). It consists of one or several Transport Blocks, each containing one MAC PDU. The Transport Blocks, shall be transmitted in the order as delivered from RLC. When multiplexing of RLC PDUs from different logical channels is performed on MAC, the order of all Transport Blocks originating from the same logical channel shall be the same as the order of the sequence delivered from

RLC. The order of the different logical channels in a TBS is set by the MAC protocol.

9.1.5 MAC PDU (E-DCH)

In the case of E-DCH there are two MAC sublayers, MAC-e and MAC-es. MAC-es sits on top of MAC-e and receives PDUs directly from MAC-d. MAC-es SDUs (i.e. MAC-d PDUs) of the same size, coming from a particular logical channel are multiplexed together into a single MAC-es payload. There is one and only one MAC-es PDU per logical channel per TTI (since only one MAC-d PDU size is allowed per logical channel per TTI). To this payload is prepended the MAC-es header (see subclause 9.2.4.1). The number of PDUs, as well as the one DDI value identifying the logical channel, the MAC-d flow and the MAC-es SDU size are included as part of the MAC-e header. In case sufficient space is left in the E-DCH transport block or if Scheduling Information needs to be transmitted, an SI will be included at the end of the MAC-e PDU (see subclause 9.2.4.2). Multiple MAC-es PDUs from multiple logical channels, but only one MAC-e PDU can be transmitted in a TTI.

In the example MAC-e PDU shown in figure 9.1.5.2a, the field DDI_0 is referring to the specific DDI value that indicates that there is an SI included in the MAC-e PDU (see subclause 9.2.4.2). This header will not be associated with a new MAC-es payload.

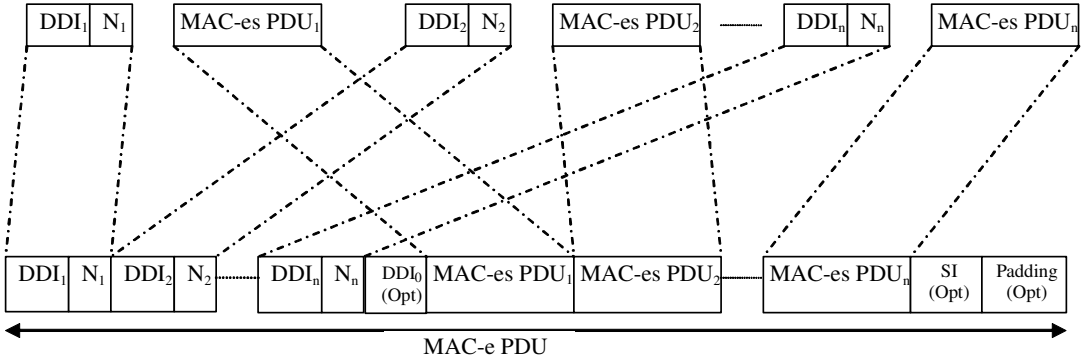


Figure 9.1.5.2a MAC-e PDU

	3GPP TS 25.321 v. 7.0.0 § 9.2.5.3.2: 9.2.5.3.2 Scheduling Information The Scheduling Information is located at the end of the MAC-e PDU and is used to provide the serving Node B with a better view of the amount of system resources needed by the UE and the amount of resources it can actually make use of. The transmission of this information will be initiated due to the quantization of the transport block sizes that can be supported or based on the triggers defined in subclause 11.8.1.6. When a Scheduling Information is transmitted, its contents shall always be updated in new transmissions with the buffer status after application of the E-TFC selection procedure described in subclause 11.8.1.4.. The logical channels for which a non-scheduled grant is configured shall never be taken into account when putting together this information. In addition, the RRC may restrict applicability for logical channels for which no non-scheduled grant was configured. This information includes the following fields: - Highest priority Logical channel ID (HLID): The HLID field identifies unambiguously the highest priority logical channel with available data. If multiple logical channels exist with the highest priority, the one corresponding to the highest buffer occupancy will be reported. The length of the HLID is 4 bits. In case the TEBS is indicating index 0 (0 byte), the HLID shall indicate the value "0000". - Fields related to amount of available data: - Total E-DCH Buffer Status (TEBS): The TEBS field identifies the total amount of data available across all logical channels for which reporting has been requested by the RRC and indicates the amount of data in number of bytes that is available for transmission and retransmission in RLC layer. When MAC is connected to an AM RLC entity, control PDUs to be transmitted and RLC PDUs outside the RLC Tx window shall also be included in the TEBS. RLC PDUs that have been transmitted but not negatively acknowledged by the peer entity shall not be included in the TEBS. The length of this field is 5 bits. The values taken by TEBS are shown in Table 9.2.5.3.2.1. - Highest priority Logical channel Buffer Status (HLBS): The HLBS field indicates the amount of data available from the logical channel identified by HLID, relative to the highest value of the buffer size range reported by TEBS when the reported TEBS index is not 31, and relative to 50000 bytes when the reported TEBS index is 31. The length of HLBS is 4 bits. The values taken by HLBS are shown in table 9.2.5.3.2.2. In case the TEBS field is indicating index 0 (0 byte), the HLBS field shall indicate index 0. - UE Power Headroom (UPH): The UPH field indicates the ratio of the maximum UE transmission power and the corresponding DPCCH code power

	defined in [17]. The length of UPH is 5 bits.
[c] forming at least one first header part corresponding to the first PDU by using a data description indicator (DDI) field representing the first PDU and an N field representing the number of uplink packet data included in the first PDU;	The iPhone 5 performs the step of forming at least one first header part corresponding to the first PDU by using a data description indicator (DDI) field representing the first PDU and an N field representing the number of uplink packet data included in the first PDU. *See* 1[a-b]; *see also, e.g.,* 3GPP TS 25.321 v. 7.0.0 § 9.2.4.2: 9.2.4.2 MAC-e header parameters - Data description indicator (DDI): The DDI field identifies the logical channel, MAC-d flow and size of the MAC-d PDUs concatenated into the associated MAC-es PDU. The mapping between the DDI values and the logical channel ID, MAC-d flow and PDU size is provided by higher layers. The length of the DDI field is 6 bits. When, due to the quantization in the transport block sizes that can be supported or triggering of the Scheduling Information, the size of the data plus header is less than or equal to the TB size of the E-TFC selected by the UE minus 24 bits, the DDI value [111111] shall be appended at the end of the MAC-e header and a Scheduling Information shall be concatenated into this MAC-e PDU, where DDI value [111111] indicates that there is a Scheduling Information concatenated in this MAC-e PDU. Otherwise, if the size of the data plus header is less than or equal to the TB size of the ETFC selected by the UE minus 18 bits, a Scheduling Information shall be concatenated into this MAC-e PDU. In any other case it is understood that another MAC-es PDU or Scheduling Information does not fit and it is therefore not necessary to reserve room in the transport block for an additional DDI field. - Number of MAC-d PDUs (N): The number of consecutive MAC-d PDUs corresponding to the same DDI value. The length of the N field is 6 bits.
[d] forming a second header part corresponding to the control SDU by using a DDI field set as a predetermined specific value representing that the control SDU is transmitted;	The iPhone 5 performs the step of forming a second header part corresponding to the control SDU by using a DDI field set as a predetermined specific value representing that the control SDU is transmitted. For example, the field DDI_0 in figure 9.1.5.2 is a second header part corresponding to the control SDU. *See* 1[a-c], *see also, e.g.,* 3GPP TS 25.321 v. 7.0.0 § 9.1.5: Error! Objects cannot be created from editing field codes. **Figure 9.1.5.1 MAC-es PDU**
and forming a second data packet unit (PDU)	The iPhone 5 performs the step of forming a second data packet unit (PDU) by concatenating a header and a payload, and transmitting the second PDU to a Node B, wherein the header includes the header parts, and the

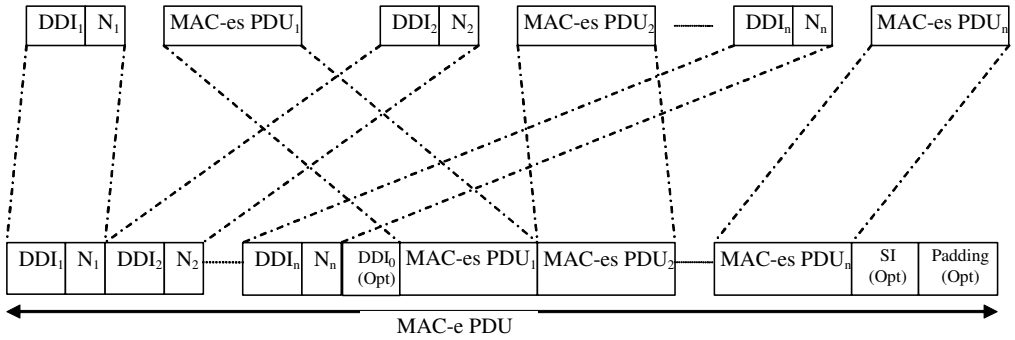
by concatenating a header and a payload, and transmitting the second PDU to a Node B, wherein the header includes the header parts, and the payload includes the first PDU and the control SDU.	payload includes the first PDU and the control SDU. *See* 1[a-c], *see also, e.g.,* 3GPP TS 25.321 v. 7.0.0 § 9.1.5:  **Figure 9.1.5.2a: MAC-e PDU**
4. The method as claimed in claim 1, wherein the control information includes at least one of transmission power information of a UE to transmit the uplink packet data service and buffer status information thereof.	The iPhone 5 performs the method of claim 1, wherein the control information includes at least one of transmission power information of a UE to transmit the uplink packet data service and buffer status information thereof. *See* claim 1[a-d]; *see also, e.g.,* 3GPP TS 25.321 v. 7.0.0 § 9.2.5.3.2: - UE Power Headroom (UPH): The UPH field indicates the ratio of the maximum UE transmission power and the corresponding DPCCH code power defined in [17]. The length of UPH is 5 bits. The Scheduling Information message is represented in figure 9.2.5.3.2-1 where for each field, the LSB is the rightmost bit in the figure and the MSB is the leftmost bit. UPH (5bits) | TEBS (5bits) | HLBS (4bits) | HLID (4bits)

	Figure 9.2.5.3.2-1: Scheduling Information format Apple infringes this claim because it has performed each and every step of this claim, including but not limited to testing and use by its employees or agents. Apple also infringes this claim by selling iPhone 5 to customers and encouraging those customers to use the products in a manner that meets each and every step of this claim.
6. The method as claimed in claim 1, wherein the DDI field inserted into the first header part represents a media access control-data (MAC-d) flow and a logical channel relating to uplink packet data included in the first PDU, and a size of the uplink packet data.	The iPhone 5 performs the method of claim 1, wherein the DDI field inserted into the first header part represents a media access control-data (MAC-d) flow and a logical channel relating to uplink packet data included in the first PDU, and a size of the uplink packet data. *See* claim 1; *see also, e.g.,* 3GPP TS 25.321 v. 7.0.0 § 9.1.5: 9.1.5 MAC PDU (E-DCH) In the case of E-DCH there are two MAC sublayers, MAC-e and MAC-es. MAC-es sits on top of MAC-e and receives PDUs directly from MAC-d. MAC-es SDUs (i.e. MAC-d PDUs) of the same size, coming from a particular logical channel are multiplexed together into a single MAC-es payload. There is one and only one MAC-es PDU per logical channel per TTI (since only one MAC-d PDU size is allowed per logical channel per TTI). To this payload is prepended the MAC-es header (see subclause 9.2.4.1). The number of PDUs, as well as the one DDI value identifying the logical channel, the MAC-d flow and the MAC-es SDU size are included as part of the MAC-e header. In case sufficient space is left in the E-DCH transport block or if Scheduling Information needs to be transmitted, an SI will be included at the end of the MAC-e PDU (see subclause 9.2.4.2). Multiple MAC-es PDUs from multiple logical channels, but only one MAC-e PDU can be transmitted in a TTI. Apple infringes this claim because it has performed each and every step of this claim, including but not limited to testing and use by its employees or agents. Apple also infringes this claim by selling the iPhone 5 to customers and encouraging those customers to use the products in a manner that meets each and every step of this claim.
13. A user equipment (UE) for transmitting control information for an uplink packet data service in a mobile communication system, the UE comprising:	The iPhone 5 is a user equipment (UE) for transmitting control information for an uplink packet data service in a mobile communication system. Each comprises at least one block for forming a first protocol data unit (PDU) including uplink packet data. *See* claim 1[a].

[a] at least one block for forming a first protocol data unit (PDU) including uplink packet data;	
[b] a control unit for forming a control service data unit (SDU) including control information for an uplink packet data service;	The iPhone 5 comprises a control unit for forming a control service data unit (SDU) including control information for an uplink packet data service. *See* claim 1[b].
[c] and a multiplexing and transmission sequence number (TSN) setting unit for forming at least one first header part corresponding to the first PDU by using a data description indicator (DDI) field representing the first PDU and an N field representing the number of uplink packet data included in the first PDU,	The iPhone 5 comprises a multiplexing and transmission sequence number (TSN) setting unit for forming at least one first header part corresponding to the first PDU by using a data description indicator (DDI) field representing the first PDU and an N field representing the number of uplink packet data included in the first PDU. *See* claim 1[c].
[d] forming a second header part corresponding to the control SDU by using a DDI field set as a predetermined specific	The iPhone 5 comprises a multiplexing and transmission sequence number (TSN) setting unit for forming a second header part corresponding to the control SDU by using a DDI field set as a predetermined specific value representing that the control SDU is transmitted. *See* claim 1[d].

value representing that the control SDU is transmitted,	
[e] and forming a second data packet unit (PDU) by concatenating a header and a payload, the header including the header parts, the payload including the first PDU and the control SDU, wherein the second PDU is transmitted to a Node B.	The iPhone 5 comprises a multiplexing and transmission sequence number (TSN) setting unit for forming a second data packet unit (PDU) by concatenating a header and a payload, the header including the header parts, the payload including the first PDU and the control SDU, wherein the second PDU is transmitted to a Node B. *See* claim 1[e].
16. The user equipment as claimed in claim 13, wherein the control information includes at least one of transmission power information of the UE to transmit the uplink packet data service and buffer status information thereof.	The iPhone 5 comprises the user equipment of claim 13, wherein the control information includes at least one of transmission power information of the UE to transmit the uplink packet data service and buffer status information thereof. *See* claims 13 and 4.
18. The user equipment as claimed in claim 13, wherein the DDI field inserted into the first header part represents a media	The iPhone 5 comprises the user equipment of claim 13, wherein the DDI field inserted into the first header part represents a media access control-data (MAC-d) flow and a logical channel relating to uplink packet data included in the first PDU, and a size of the uplink packet data. *See* claims 13 and 6.

access control-data (MAC-d) flow and a logical channel relating to uplink packet data included in the first PDU, and a size of the uplink packet data.	

EXHIBIT C

SAMSUNG'S AMENDED PATENT L.R. 3-1(A)-(D) DISCLOSURES FOR U.S. PATENT NO. 7,672,470

ASSERTED CLAIM (PATENT L.R. 3-1(A))	ACCUSED INSTRUMENTALITY AND HOW EACH ELEMENT IS MET BY ACCUSED INSTRUMENTALITY (PATENT L.R. 3-1(B)-(D))
7. An audio/visual (A/V) device which processes an audio signal for an external audio reproduction unit, the A/V device comprising:	The iPhone 5 is an audio/visual (A/V) device which processes an audio signal for an external audio reproduction unit. The iPhone 5 includes an audio output port for connecting an external audio reproduction unit, such as headphones or external speakers. *See, e.g.,* iPhone 5 technical specifications available at http://www.apple.com/iphone/specs.html: 
7[a] a speaker operable to output the audio signal;	The iPhone 5 comprises an internal speaker operable to output an audio signal. *See* above; *see also, e.g.,* When no external reproduction unit is connected, the iPhone 5 plays music through its built-in speaker.

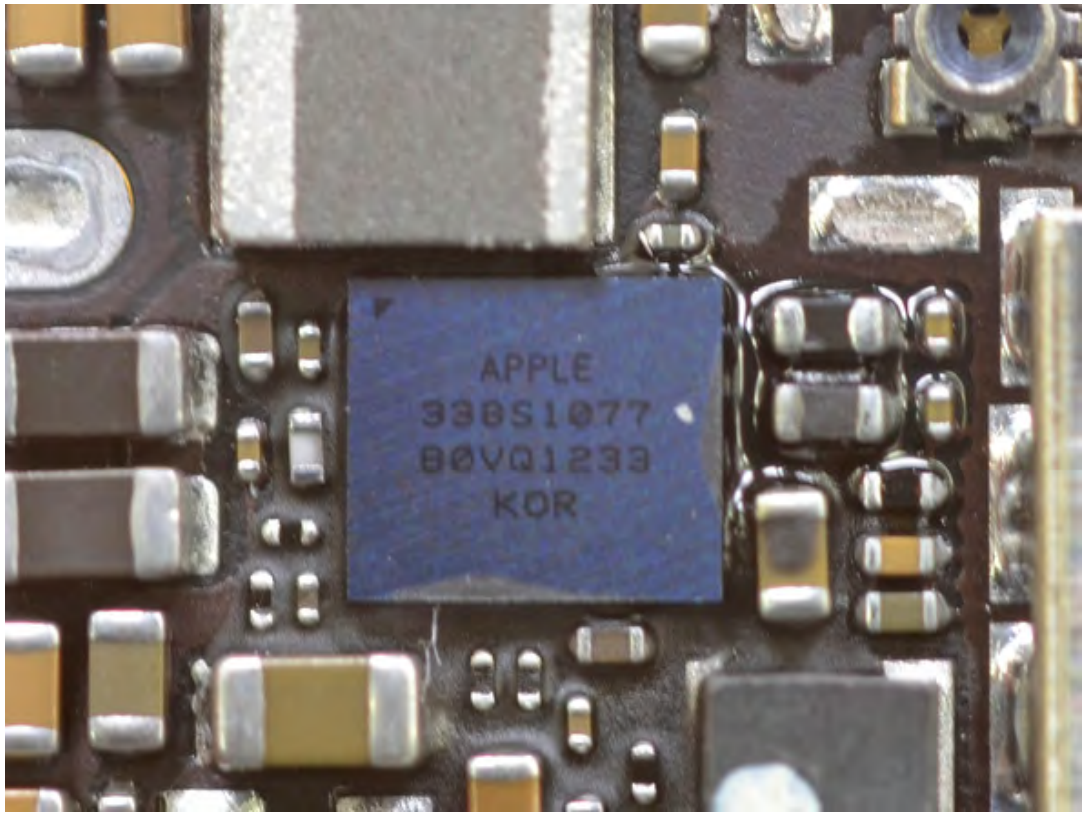
	 iPhone 5 Music Application when playing a song through the speakers[1]:

[1] Screen images show the operation of the iPhone 5 running iOS 6.0 unless otherwise noted. Previously accused devices (as identified in Samsung's original infringement contentions that were served on June 15, 2012) that also run on iOS 6.0 operate in substantially the same way.

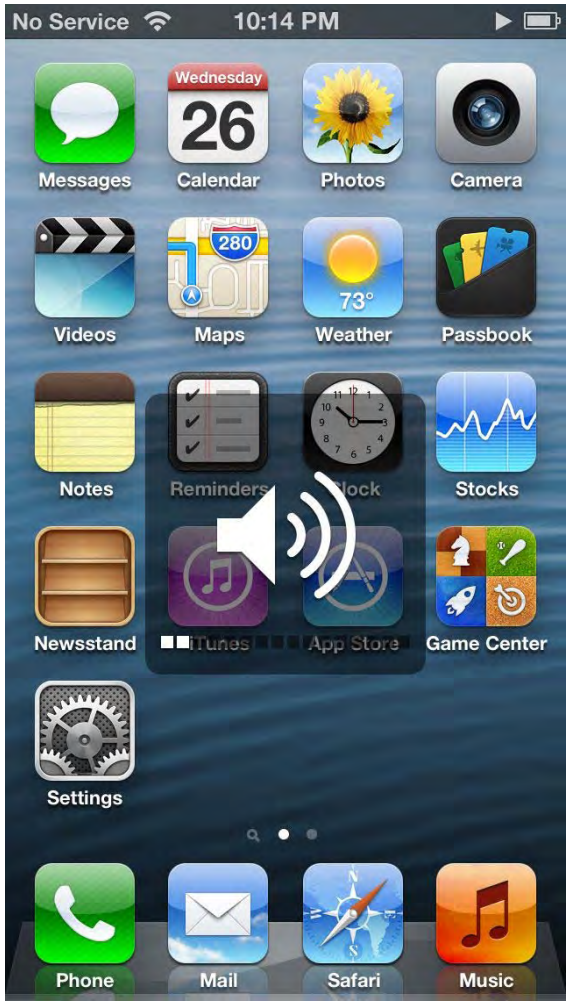
iPhone 5 home screen, while device continues to play song started in Music Application through speakers:

	
7[b] an audio output port, which is connectable to an external audio reproduction	The iPhone 5 comprises an audio output port, which is connectable to an external audio reproduction unit and operable to output the audio signal to the external audio reproduction unit. *See* above; *see also, e.g.*, iPhone 5 audio output port for headphones (headphone minijack):

unit and operable to output the audio signal to the external audio reproduction unit;	 As shown below, when headphones are connected to the audio output port, the iPhone 5 plays music through the headphones. When headphones are not connected, the iPhone 5 plays music through the built-in speakers.
7[c] an audio signal processing unit operable to process the audio signal and output the processed audio signal to one of the speaker and the audio output port;	The iPhone 5 comprises an audio signal processing unit operable to process the audio signal and output the processed audio signal to one of the speaker and the audio output port. For example, each device includes an audio codec chip, and associated hardware and/or software, to process audio and selectively output it to an internal speaker or an external audio port. *See, e.g.*, iPhone 5 audio codec chip from teardown available at http://www.ifixit.com/Teardown/iPhone-5-Teardown/10525/3:

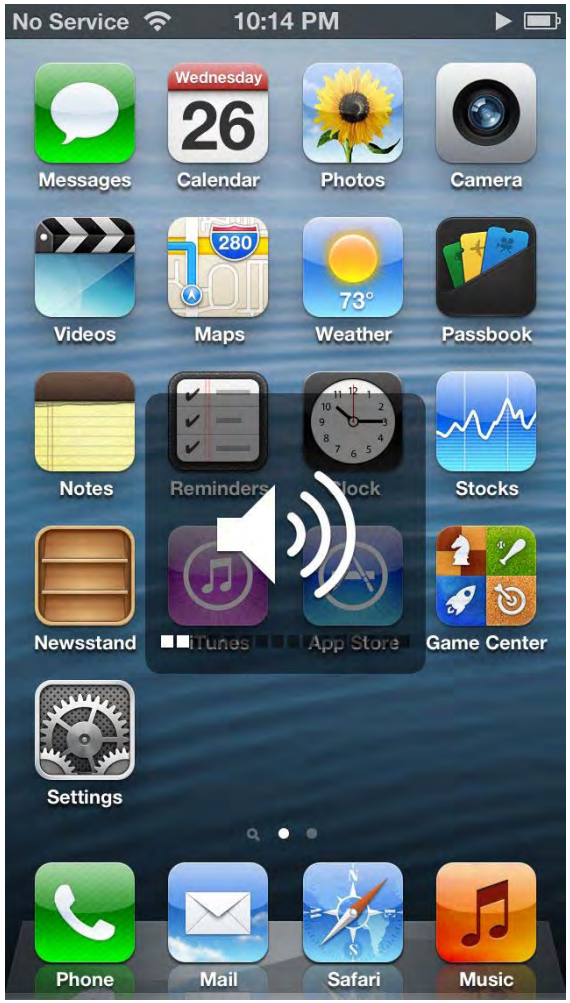
	 As shown below, when headphones are connected to the audio output port, the iPhone 5 automatically plays music through the headphones. When headphones are not connected, the iPhone 5 plays music through the built-in speakers.
7[d] a display screen operable to display one of a first On-screen Display	The iPhone 5 comprises a display screen operable to display a first On-screen Display (OSD) window, which indicates that the external audio reproduction unit is connected to the audio output port. For example, when headphones are connected and a volume control command is received the iPhone 5 displays a "headphones" volume control window.

(OSD) window, which indicates that the external audio reproduction unit is connected to the audio output port,	
7[e] and a second OSD window, which indicates that	The iPhone 5 comprises a display screen operable to display a second OSD window, which indicates that the external audio reproduction unit is not connected to the audio output port. For example, when headphones are not connected and a volume control command is received the iPhone 5 displays the

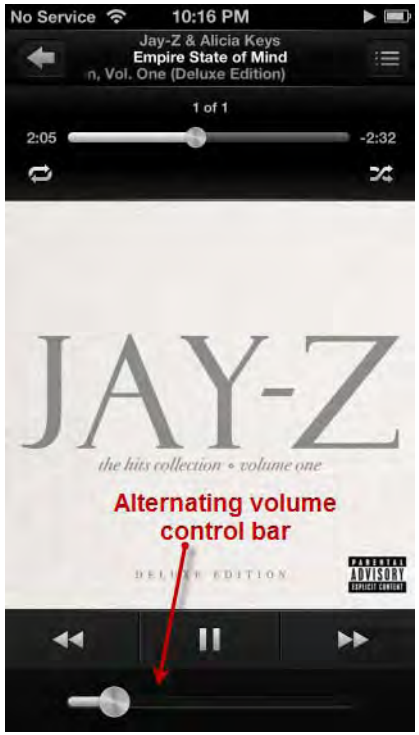
the external audio reproduction unit is not connected to the audio output port;	following speaker volume control window. 
7[f] and a control unit which is operable to	The iPhone 5 comprises a control unit which is operable to receive an input command and which controls the audio signal processing unit and the display screen, wherein if the control unit receives the input command and the external audio reproduction unit is connected to the audio output port, the control unit controls the display screen to automatically display the first OSD window, and wherein if the control unit receives the input command and the

receive an input command and which controls the audio signal processing unit and the display screen, wherein if the control unit receives the input command and the external audio reproduction unit is connected to the audio output port, the control unit controls the display screen to automatically display the first OSD window, and wherein if the control	external audio reproduction unit is not connected to the audio output port, the control unit controls the display screen to automatically display the second OSD window. For example, the iPhone 5 comprises a processor, a touchscreen, and associated circuitry and software. These components receive an input command, such as the command to increase volume, when the user presses the corresponding button on the phone or touches a corresponding area of the touchscreen. iPhone 5 volume control buttons:  If headphones are connected to the audio output port, the phone displays the volume control window corresponding to the headphones volume level.

unit receives the input command and the external audio reproduction unit is not connected to the audio output port, the control unit controls the display screen to automatically display the second OSD window.	 If headphones are not connected to the audio output port, the phone displays the volume control window corresponding to the speaker volume level.

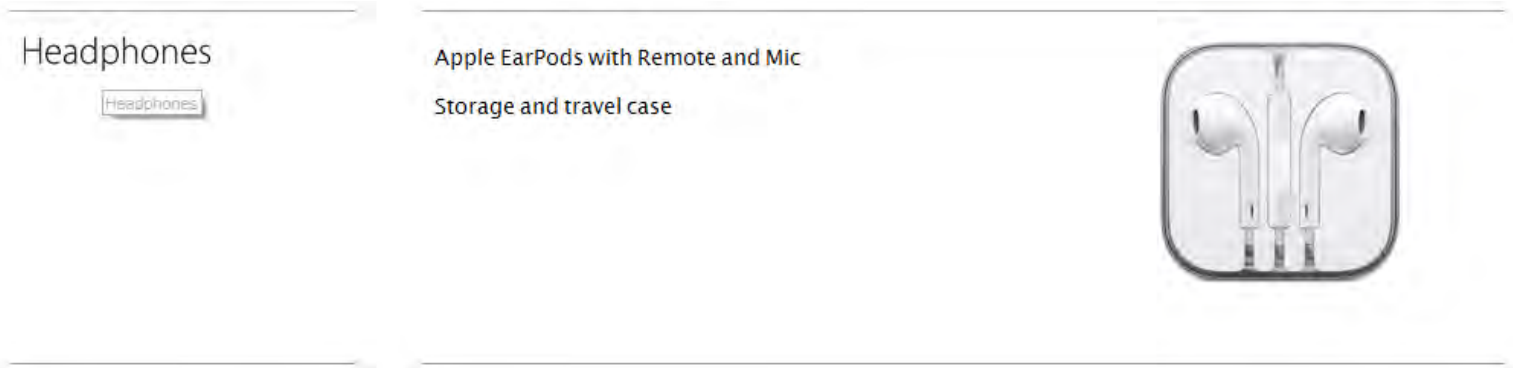


The iPhone 5 Music application also displays a different touch sensitive volume control bar depending on whether headphones are connected. When headphones are connected the displayed bar corresponds to the headphones volume level. When headphones are not connected the displayed bar corresponds to the speaker volume level.

	
8. The A/V device according to claim 7, 8[a] wherein if the control unit receives the input command and the external	The iPhone 5 is an A/V device according to claim 7, wherein if the control unit receives the input command and the external audio reproduction unit is connected to the audio output port, the control unit further controls the audio signal processing unit to automatically output the processed audio signal to the audio output port. *See* claim 7. For example, when the iPhone 5 detects that headphones are connected it automatically outputs the audio signal to the audio output port. Similarly, when the headphones are connected and the iPhone 5 receives a command to increase or decrease the volume, it automatically outputs the audio signal to the audio output port.

audio reproduction unit is connected to the audio output port, the control unit further controls the audio signal processing unit to automatically output the processed audio signal to the audio output port,	
8[b] and wherein if the control unit receives the input command and the external audio reproduction	The iPhone 5 is an A/V device according to claim 7, wherein if the control unit receives the input command and the external audio reproduction unit is not connected to the audio output port, the control unit further controls the audio signal processing unit to automatically output the processed audio signal to the speaker. *See* claim 7. For example, when the iPhone 5 detects that headphones are not connected it automatically outputs the audio signal to the built-in speakers. Similarly, when the headphones are not connected and the iPhone 5 receives a command to increase or decrease the volume, it automatically outputs the audio signal to the built-in speakers.

unit is not connected to the audio output port, the control unit further controls the audio signal processing unit to automatically output the processed audio signal to the speaker.	
9. The A/V device according to claim 7, wherein the external audio reproduction unit includes one of	The iPhone 5 is an A/V device according to claim 7, wherein the external audio reproduction unit includes one of headphones and an external speaker. *See* claim 7. For example, the iPhone 5 is sold with a set of headphones. In addition, other headphones or external speakers may be connected to the iPhone 5 audio output port. *See*, *e.g.*, iPhone 5 technical specifications available at http://www.apple.com/iphone/specs.html:

headphones and an external speaker.	
10. The A/V device according to claim 7, wherein the input command includes volume control command.	The iPhone 5 is an A/V device according to claim 7, wherein the input command includes volume control command. *See* claim 7. For example, the iPhone 5 includes volume control buttons, and displays volume control user interface elements in, for example, the Music application. *See* claim 7[f].
11. The A/V device according to claim 10, wherein the first OSD window displays previously stored	The iPhone 5 is an A/V device according to claim 10, wherein the first OSD window displays previously stored volume level of external audio reproduction unit and the second OSD window displays previously stored volume level of the speaker. *See* claim 10. For example, the headphones volume control window displays a volume bar indicating the previously stored volume level for headphones (audio output port).

volume level of external audio reproduction unit and the second OSD window displays previously stored volume level of the speaker.	 Similarly, the built-in speakers volume control window displays a volume bar indicating the previously stored volume level for the speakers.

	
12. A method for controlling an audio/visual (A/V) device having an audio output port, speaker and a display	The iPhone 5 performs the claimed method for controlling an audio/visual (A/V) device having an audio output port, speaker and a display screen, wherein the A/V device processes an audio signal for an external audio reproduction unit. *See* claim 7. Apple infringes this claim and the dependent claims identified herein because it has performed each and every step of the claims, including but not limited to testing and use by its employees or agents. Apple also infringes this claim by selling The iPhone 5 to customers and encouraging those customers to use the products in a manner that meets each and every step of this claim.

screen, wherein the A/V device processes an audio signal for an external audio reproduction unit, the method comprising:	
12[a] determining whether the external audio reproduction unit is connected to the audio output port of the A/V device;	The iPhone 5 performs the step of determining whether the external audio reproduction unit is connected to the audio output port of the A/V device. This is evident because, for example, the iPhone 5 automatically outputs sound through headphones when headphones are connected. *See* claim 7.
12[b] receiving a input	The iPhone 5 performs the step of receiving an input command. For example, the iPhone receives a volume control command. *See* claim 7(f).

command;	
12[c] if the external audio reproduction unit is connected to the audio output port of the A/V device, automatically displaying on the display screen a first OSD window indicating that the external audio reproduction unit is connected to the audio output port;	The iPhone 5 meets this claim element because if the external audio reproduction unit is connected to the audio output port of the A/V device, each device automatically displays on the display screen a first OSD window indicating that the external audio reproduction unit is connected to the audio output port. For example, a volume control window is displayed corresponding to the headphone volume level. *See* claim 7(f).
12[d] and if the external audio	The iPhone 5 meets this claim element because if the external audio reproduction unit is not connected to the audio output port, each device automatically displays on the display screen a second OSD window indicating that the external audio reproduction unit is not connected to the audio output port. For example, a volume control window is displayed

reproduction unit is not connected to the audio output port, automatically displaying on the display screen a second OSD window indicating that the external audio reproduction unit is not connected to the audio output port.	corresponding to the speaker volume level when headphones are not connected. *See* claim 7(f).
13. The method according to claim 12, 13[a] wherein if the external audio reproduction unit is connected to the audio	The iPhone 5 performs the method of claim 12, wherein if the external audio reproduction unit is connected to the audio output port of the A/V device, the method further comprises automatically outputting the processed audio signal to the audio output port. *See* claim 8[a].

output port of the A/V device, the method further comprises automatically outputting the processed audio signal to the audio output port,	
13[b] and wherein if the external audio reproduction unit is not connected to the audio output port, the method further comprises automatically outputting the processed audio signal to the speaker.	The iPhone 5 meets this claim element because if the external audio reproduction unit is not connected to the audio output port, each device automatically outputs the processed audio signal to the speaker. *See* claim 8[b].
14. The method according to	The iPhone 5 performs the method of claim 12, wherein the external audio reproduction unit includes one of headphones and an external speaker. *See* claim 9.

claim 12, wherein the external audio reproduction unit includes one of headphones and an external speaker.	
15. The method according to claim 12, wherein the input command includes volume control command.	The iPhone 5 performs the method of claim 12, wherein the input command includes volume control command. *See* claim 10.
16. The method according to claim 15, wherein the first OSD window displays previously stored volume level	The iPhone 5 performs the method of claim 15, wherein the first OSD window displays previously stored volume level of external audio reproduction unit and the second OSD window displays previously stored volume level of the speaker.. *See* claim 11.

of external audio reproduction unit and the second OSD window displays previously stored volume level of the speaker.	

EXHIBIT D

SAMSUNG'S AMENDED PATENT L.R. 3-1(A)-(D) DISCLOSURES FOR U.S. PATENT NO. 7,577,757

ASSERTED CLAIM (PATENT L.R. 3-1(A))	ACCUSED INSTRUMENTALITY AND HOW EACH ELEMENT IS MET BY ACCUSED INSTRUMENTALITY (PATENT L.R. 3-1(B)-(D))
1. A system for synchronizing devices in a multimedia environmental, the system comprising:	Apple directly infringes this claim through testing and use of the claimed system for synchronizing its devices in a multimedia environment by and at the direction of its employees. Apple also indirectly infringes this claim by offering to sell and selling components of the claimed system that are found in the iPhone 5, iMac, MacBook Air, MacBook Pro, Mac Mini, Mac Pro, and PCs with iTunes (collectively the "Accused Devices") to customers and by encouraging and aiding those customers to use the Accused Devices in conjunction with the previously accused Apple products in a manner that meets each and every step of this claim.[1]
at least one central storage and interface device, wherein audio, video, or photographic data, including content information and content management information, relating to at least one user, are stored in digital	Apple's Mac Products, including the iMac, MacBook Air, MacBook Pro, Mac Mini, Mac Pro, and Apple TV (collectively the "Mac Products"), are central storage and interface devices, wherein audio, video, or photographic data, including content information and content management information, relating to the user, are stored in digital form. Apple's iCloud service, including its iTunes Match service that works with iCloud, includes at least a central storage and interface device, wherein audio, video, or photographic data, including content information and content management information, relating to the user, are stored in digital form. As described by Apple on its website, Apple's iCloud is a central storage service that "automatically and securely stores" a user's multimedia content and allows access to it "from whichever device you happen to be using":

[1] In its original infringement contentions served on June 15, 2012, Samsung alleged that the iPhone (all generations prior to the iPhone 5), iPod Touch (all generations), iPad (all generations), iMac, MacBook Air, MacBook Pro, Mac Mini, Mac Pro, Apple TV, and PCs with iTunes were collectively the "Accused Devices" that have been used by Apple and its customers to create systems that infringe each and every asserted claim of the '757 patent. Of those, the previously accused devices that now run on the newly released iOS 6.0 (the same operating system that ships with the iPhone 5) operate in substantially the same way as described herein.

form; and	**Your content. On all your devices.** iCloud is so much more than a hard drive in the sky. It makes it quick and effortless to access just about everything on the devices you use every day. iCloud automatically and securely stores your content so it's always available to your iPhone, iPad, iPod touch, Mac, or PC. It gives you access to your music, movies, apps, latest photos, and more from whichever device you happen to be using. And it keeps your email, contacts, and calendars up to date across all your devices. No syncing required. No management required. In fact, no anything required. iCloud does it all for you. As described on Apple's website, iTunes Match is a service that allows a user to store all of its music in iCloud so that the user can access, listen, and download that music anytime and anywhere on an iPhone (3GS or later), iPad (all generations), iPod Touch (3rd or 4th generations), Mac, or a PC that runs iTunes.

How iTunes Match works.

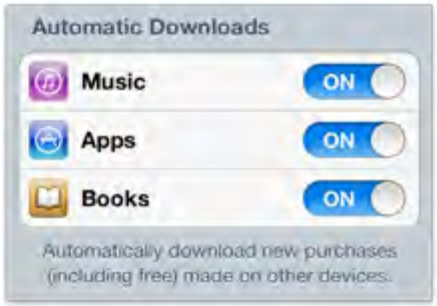
iTunes determines which songs in your collection are available in the iTunes Store. Any music with a match is automatically added to iCloud for you to listen to anytime, on any device. Since there are more than 20 million songs in the iTunes Store, chances are your music is already in iCloud. And for the few songs that aren't, iTunes uploads what it can't match (which is much faster than uploading your entire music library). Even better, all the music iTunes matches plays back from iCloud at 256-Kbps AAC DRM-free quality — even if your original copy was of lower quality.

Once your music is in iCloud, you can stream it to any of your devices. Just browse the complete list of all your music stored in the cloud. To listen to a song, tap the iCloud icon next to it and your song starts playing. You can store up to 25,000 songs in iCloud (more if songs are purchased from the iTunes Store), but only what you want to play is stored on your device. So you have immediate access to a huge music library without taking up storage space.

(http://www.apple.com/itunes/itunes-match/, viewed 9/24/2012)

Non-Apple PC computers, including desktops and laptops, that run Apple's iTunes software are further examples of central storage and interface devices, wherein audio, video, or photographic data, including content information and content management information, relating to the user, are stored in digital form. These PCs, along with the Mac Products and iCloud, are referred to collectively as the "Central Devices".

and at least one zone, each zone having at least one zone specific storage and interface device capable of storing or interfacing with information stored in the central storage and interface device, wherein audio, video, or photographic information, relating to at least one user, contained within the zone specific storage and interface device and the central storage and interface device, are updated in relation to the zone specific storage and interface devices and the central storage and interface device, whereby the at	Apple's iPhone 5, the iMac, MacBook Air, MacBook Pro, Mac Mini, and Mac Pro devices (collectively the "Zone Devices") are storage and interface devices that a user can use in a specific zone and is capable of storing or interfacing with information stored in a central storage and interface device. Apple's software that is pre-loaded on a Zone Device allows the user of a Zone Device to store or interface with the user's audio, video, or photographic information stored on a Central Device. Apple's software also allows the audio, video, or photographic information contained within a Zone Device and a Central Device to be updated in relation to each other. As a result, Apple's software allows the user to be situated in one zone and to access all of the user's audio, video, or photographic information stored on the Zone Device or on the Central Device. The iPhone User Guide (for iOS 6 software), for example, describe the variety of ways information can be exchanged between a Central Device and a Zone Device using Apple's software: **Managing content on your iOS devices** You can transfer information and files between your iOS devices and computers using either iCloud or iTunes. • *iCloud* stores content such as music, photos, calendars, contacts, documents, and more, and wirelessly pushes it to your other iOS devices and computers, keeping everything up to date. See iCloud below. • *iTunes* syncs music, video, photos, and more, between your computer and iPhone. Changes you make on one device are copied to the other when you sync. You can also use iTunes to copy a file to iPhone for use with an app, or to copy a document you've created on iPhone to your computer. See Syncing with iTunes on page 16. You can use iCloud or iTunes, or both, depending on your needs. For example, you can use iCloud Photo Stream to automatically get photos you take on iPhone to your other devices, and use iTunes to sync photo albums from your computer to iPhone. *Important:* Don't sync items in the Info pane of iTunes (such as contacts, calendars, and notes) and also use iCloud to keep that information up to date on your devices. Otherwise, duplicated data may result. **(iPhoneUser Guide For iOS 6 Software, pg. 14)**

least one user can be situated in any one of the zones and access the audio, video, or photographic information related to the at least one user.	**iCloud** As described above, Apple's iCloud service allows a user to store, interface with and access all of the user's multimedia information stored on iCloud from a Zone Device. For example, any of the user's songs stored in iCloud can be streamed or downloaded, over Wi-Fi or a cellular network, to an iOS device or a computer running iTunes. Updates resulting from new music purchases or changes to the user's existing multimedia library are automatically downloaded to a Zone Device over Wi-Fi or a cellular network. As described on Apple's website: **New purchases. Automatically everywhere.** iCloud can automatically download new music purchases to all your devices over Wi-Fi — or over a cellular network if you choose. Which means you can buy a song from iTunes on your iPad at home, and find it waiting for you on your iPhone during your morning commute. All without having to sync.[1]  **Your past purchases. Available on all your devices.** Now you can download music, movies, and TV shows you've previously purchased to all your devices. When you buy from iTunes, iCloud stores your purchase history. So you can see what you've bought — no matter which device you bought it on. You can access your purchase history from the iTunes Store on your iPhone, iPad, iPod touch, Mac, PC, or Apple TV. And since you already own the songs, albums, movies, or TV shows in your purchase history, you can tap to download them to any of your devices.[1] **(http://www.apple.com/icloud/features/itunes-in-the-cloud/, viewed 09/24/2012)** The iPhone User Guide, for example, provides instructions to a user for setting up an iCloud account and using its functionality:

iCloud

iCloud stores your content, including music, photos, contacts, calendars, and supported documents. Content stored in iCloud is pushed wirelessly to your other iOS devices and computers set up with the same iCloud account.

iCloud is available on devices with iOS 5 or later, on Mac computers with OS X Lion v10.7.2 or later, and on PCs with the iCloud Control Panel for Windows (Windows Vista Service Pack 2 or Windows 7 required).

iCloud features include:

- *iTunes in the Cloud*—Download previous iTunes music and TV show purchases to iPhone for free, anytime.
- *Apps and Books*—Download previous App Store and iBookstore purchases to iPhone for free, anytime.
- *Photo Stream*—Photos you take appear on all your devices. You can also create photo streams to share with others. See Photo Stream on page 71.
- *Documents in the Cloud*—For iCloud-enabled apps, keep documents and app data up to date across all your devices.
- *Mail, Contacts, Calendars*—Keep your mail contacts, calendars, notes, and reminders up to date across all your devices.
- *Backup*—Back up iPhone to iCloud automatically when connected to power and Wi-Fi. See Backing up iPhone on page 150.
- *Find My iPhone*—Locate your iPhone on a map, display a message, play a sound, lock the screen, or remotely wipe the data. See Find My iPhone on page 34.
- *Find My Friends*—Share your location with people who are important to you. Download the free app from the App Store.
- *iTunes Match*—With an iTunes Match subscription, all your music—including music you've imported from CDs or purchased somewhere other than iTunes—appears on all of your devices and can be downloaded and played on demand. See iTunes Match on page 62.
- *iCloud Tabs*—See the webpages you have open on your other iOS devices and OS X computers. See Chapter 7, Safari, on page 55.

With iCloud, you get a free email account and 5 GB of storage for your mail, documents, and backups. Your purchased music, apps, TV shows, and books, as well as your photo streams, don't count against your free space.

Sign in or create an iCloud account, and set iCloud options: Go to Settings > iCloud.

Purchase additional iCloud storage: Go to Settings > iCloud > Storage & Backup, then tap Manage Storage. For information about purchasing iCloud storage, go to help.apple.com/icloud.

View and download previous purchases:

- *iTunes Store purchases:* Go to iTunes, tap More, then tap Purchased.
- *App Store purchases:* Go to App Store, tap Updates, then tap Purchased.
- *iBookstore purchases:* Go to iBooks, tap Store, then tap Purchased.

Turn on Automatic Downloads for music, apps, or books: Go to Settings > iTunes & App Stores.

For more information about iCloud, go to www.apple.com/icloud. For support information, go to www.apple.com/support/icloud.

(iPhoneUser Guide For iOS 6 Software, pg. 15)

Photo Stream

Similarly, Photo Stream allows a user to take a photo on a Zone Device or a non-Apple device with a digital camera and that photo will automatically appear on the Central Device and all other Zone Devices.

Because certain Zone Devices have limited memory, Apple designed Photo Stream to allow the Central Device to be the "master photo library." As further described on Apple's website:

Master photo library. On your Mac or PC.

Keeping a complete set of your photos on your Mac is as simple as turning on Photo Stream in iPhoto or Aperture. Every new photo you take appears in a Photo Stream album just as it does on your iPhone, iPad, and iPod touch. But since your Mac has more storage than your iOS device, it automatically imports every picture from your Photo Stream into your photo library so you can edit, delete, and share the ones you want. Want to get the photos you've taken on your point-and-shoot or DSLR camera into your Photo Stream to view on all your other devices? The photos you import to your library from a camera or SD card are automatically uploaded to your Photo Stream. If you have a PC, you can auto-import and upload pictures, too. Just turn on Photo Stream, grab a camera, and start shooting.

(http://www.apple.com/icloud/features/photo-stream.html, viewed 09/24/2012)

Apple instructs a user on how to use its Photo Stream software, for example, in the iPhone User's Guide:

Photo Stream

With Photo Stream, a feature of iCloud (see iCloud on page 15), photos you take on iPhone automatically appear on your other devices set up with Photo Stream, including your Mac or PC. Photo Stream also lets you share select photos with friends and family, directly to their devices or on the web.

About Photo Stream

When Photo Stream is turned on, photos you take on iPhone (as well as any other photos added to your Camera Roll) appear in your photo stream after you leave the Camera app and iPhone is connected to the Internet via Wi-Fi. These photos appear in the My Photo Stream album on iPhone and on your other devices set up with Photo Stream.

Turn on Photo Stream: Go to Settings > iCloud > Photo Stream.

Photos added to your photo stream from your other iCloud devices also appear in My Photo Stream. iPhone and other iOS devices can keep up to 1000 of your most recent photos in My Photo Stream. Your computers can keep all your Photo Stream photos permanently.

Note: Photo Stream photos don't count against your iCloud storage.

Manage photo stream contents: In a photo stream album, tap Edit.

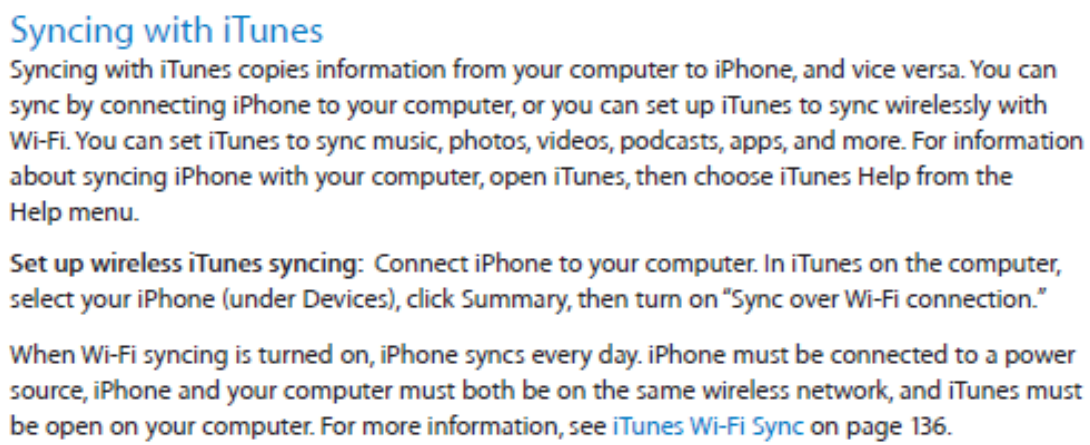
- *Save photos to iPhone:* Select the photos, then tap Save.
- *Share, print, copy, or save photos to your Camera Roll album:* Select the photos, then tap Share.
- *Delete photos:* Select the photos, then tap Delete.

(iPhoneUser Guide For iOS 6 Software, pg. 71)

Apple also provides software that allows a user's Zone Device to store or interface with the user's multimedia content on a Central Device even if the user does not have an iCloud account.

Syncing With iTunes

First, a user can sync music, photos and video between a Zone Device and a Central Device using iTunes. As described in the iPhone User's Guide:



Syncing with iTunes

Syncing with iTunes copies information from your computer to iPhone, and vice versa. You can sync by connecting iPhone to your computer, or you can set up iTunes to sync wirelessly with Wi-Fi. You can set iTunes to sync music, photos, videos, podcasts, apps, and more. For information about syncing iPhone with your computer, open iTunes, then choose iTunes Help from the Help menu.

Set up wireless iTunes syncing: Connect iPhone to your computer. In iTunes on the computer, select your iPhone (under Devices), click Summary, then turn on "Sync over Wi-Fi connection."

When Wi-Fi syncing is turned on, iPhone syncs every day. iPhone must be connected to a power source, iPhone and your computer must both be on the same wireless network, and iTunes must be open on your computer. For more information, see iTunes Wi-Fi Sync on page 136.

(iPhoneUser Guide For iOS 6 Software, pg. 16)

Home Sharing

Second, Apple's Home Sharing software allows a user with a second desktop or laptop computer (e.g, iMac, MacBook Air, MacBook Pro, Mac Mini, Mac Pro or PC) to operate it as a zone specific storage and interface device that is capable of storing or interfacing with multimedia information stored on a Central Device. As described on Apple's website, Home Sharing allows a user to share the user's "iTunes media libraries between up to 5 computers in your household."

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Understanding Home Sharing

Summary

Home Sharing in iTunes is designed to let you easily share your iTunes media libraries between up to five computers in your household. You can also use Home Sharing to play your iTunes content on your iOS devices and Apple TV (2nd generation) if they are connected to your home Wi-Fi network.

less

Products Affected

Apple TV (2nd generation), iPad, iPhone, iPod touch, iTunes 10, iTunes 9

(http://support.apple.com/kb/HT3819, viewed 09/24/2012)

Home Sharing also allows an iPhone 5 to interface with a Central Device by playing its iTunes content. The iPhone User's Guide, for example, instructs a user how to interface with the user's iTunes library on the user's Mac or PC:

Home Sharing

Home Sharing lets you play music, movies, and TV shows from the iTunes library on your Mac or PC. iPhone and your computer must be on the same Wi-Fi network.

Note: Home Sharing requires iTunes 10.2 or later, available at www.itunes.com/download. Bonus content, such as digital booklets and iTunes Extras, can't be shared.

Play music from your iTunes library on iPhone:

1 In iTunes on your computer, choose Advanced > Turn On Home Sharing. Log in, then click Create Home Share.

2 On iPhone, go to Settings > Music, then log in to Home Sharing using the same Apple ID and password.

3 In Music, tap More, then tap Shared and choose your computer's library.

Return to content on iPhone: Tap Shared and choose My iPhone.

(iPhoneUser Guide For iOS 6 Software, pg. 63)
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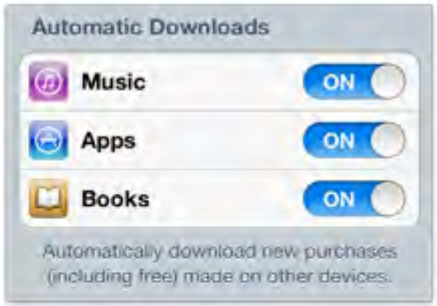
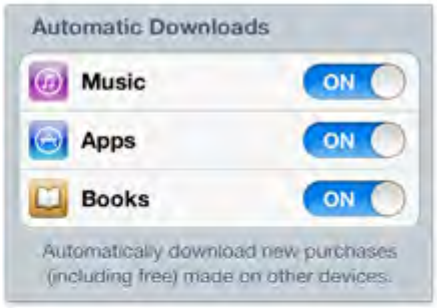
<tr>
<td>2. The system of</td>
<td>Apple directly infringes this claim through testing and use of the claimed system for synchronizing its devices in a</td>
</tr>
</table>

claim 1, further comprising a local area network (LAN) coupled to at least one zone specific storage and interface device with the central storage and interface device, wherein the interconnections within the LAN is hardwired or wireless.	multimedia environment by and at the direction of its employees. Apple also indirectly infringes this claim by offering to sell and selling components of the claimed system that are found in the Accused Devices to customers and by encouraging and aiding those customers to use the Accused Devices in conjunction with the previously accused Apple products in a manner that meets each and every step of this claim. Apple's software allows a user to couple a Zone Device to a Central Device using a local area network, either by a hardwired connection or wirelessly. For example, as described by the iPhone User's Guide, a user can sync with iTunes by connecting an iPhone (i.e., one zone specific storage device) with a Mac (i.e., the central storage and interface device) using a hardwired connection (i.e., a Dock Connector to USB Cable) or wirelessly using Wi-Fi. **Syncing with iTunes** Syncing with iTunes copies information from your computer to iPhone, and vice versa. You can sync by connecting iPhone to your computer using the Dock Connector to USB Cable, or you can set up iTunes to sync wirelessly using Wi-Fi. You can set iTunes to sync music, photos, video, podcasts, apps, and more. For information about syncing iPhone with a computer, open iTunes, then select iTunes Help from the Help menu. Similarly, Apple's iCloud service allows a user to couple a Zone Device to the iCloud server (i.e., a Central Device) using Wi-Fi.

	New purchases. Automatically everywhere. iCloud can automatically download new music purchases to all your devices over Wi-Fi — or over a cellular network if you choose. Which means you can buy a song from iTunes on your iPad at home, and find it waiting for you on your iPhone during your morning commute. All without having to sync.[1]  **Your past purchases. Available on all your devices.** Now you can download music, movies, and TV shows you've previously purchased to all your devices. When you buy from iTunes, iCloud stores your purchase history. So you can see what you've bought — no matter which device you bought it on. You can access your purchase history from the iTunes Store on your iPhone, iPad, iPod touch, Mac, PC, or Apple TV. And since you already own the songs, albums, movies, or TV shows in your purchase history, you can tap to download them to any of your devices.[1] **(http://www.apple.com/icloud/features/itunes-in-the-cloud/, viewed 09/24/2012)** Indeed, all of the Apple software components described above with respect to claim 1 allow a Zone Device to couple to a Central Device wirelessly using Wi-Fi.

3. The system of claim 1, further comprising a wide area network (WAN) coupling at least one zone specific storage and interface device with the central storage and interface device.	Apple directly infringes this claim through testing and use of the claimed system for synchronizing its devices in a multimedia environment by and at the direction of its employees. Apple also indirectly infringes this claim by offering to sell and selling components of the claimed system that are found in the Accused Devices to customers and by encouraging and aiding those customers to use the Accused Devices in conjunction with the previously accused Apple products in a manner that meets each and every step of this claim. For example, Apple's iCloud service allows a user to couple a Zone Device to the iCloud server (i.,e., the Central Device) using a wide area network (e.g., the Internet over a cellular network). As further described on Apple's website: **New purchases. Automatically everywhere.** iCloud can automatically download new music purchases to all your devices over Wi-Fi — or over a cellular network if you choose. Which means you can buy a song from iTunes on your iPad at home, and find it waiting for you on your iPhone during your morning commute. All without having to sync.[1]  **Your past purchases. Available on all your devices.** Now you can download music, movies, and TV shows you've previously purchased to all your devices. When you buy from iTunes, iCloud stores your purchase history. So you can see what you've bought — no matter which device you bought it on. You can access your purchase history from the iTunes Store on your iPhone, iPad, iPod touch, Mac, PC, or Apple TV. And since you already own the songs, albums, movies, or TV shows in your purchase history, you can tap to download them to any of your devices.[1] **(http://www.apple.com/icloud/features/itunes-in-the-cloud/, viewed 09/24/2012)**
4. The system of claim 1, further	Apple directly infringes this claim through testing and use of the claimed system for synchronizing its devices in a multimedia environment by and at the direction of its employees. Apple also indirectly infringes this claim by

comprising a set of zone specific output devices coupled to each of the zone specific storage and interface device, wherein audio, video, and photographic information is outputted, thereby the at least one user is disposed to have substantially identical content information and content management information displayed and manipulated in anyone of the zones.	offering to sell and selling components of the claimed system that are found in the Accused Devices to customers and by encouraging and aiding those customers to use the Accused Devices in conjunction with the previously accused Apple products in a manner that meets each and every step of this claim. Each of the Zone Devices have zone specific output devices that are coupled to the Zone Device itself, including but not limited to displays and speakers for outputting audio, video, and photographic information. By utilizing the Apple software components described above, with Apple's encouragement and direction, the user has substantially identical content information and content management information available to display and manipulate in any of the devices in any zone.
5. The system of claim 1, further comprising an output device coupled to the at least one central storage and interface, wherein	Apple directly infringes this claim through testing and use of the claimed system for synchronizing its devices in a multimedia environment by and at the direction of its employees. Apple also indirectly infringes this claim by offering to sell and selling components of the claimed system that are found in the Accused Devices to customers and by encouraging and aiding those customers to use the Accused Devices in conjunction with the previously accused Apple products in a manner that meets each and every step of this claim. Apple's iMac, MacBook Air, MacBook Pro, Mac Mini, Mac Pro, and Apple TV devices, as well as non-Apple PCs with iTunes (collectively the "Central Devices"), each have an output device that are coupled to the Central Device itself, including but not limited to displays and speakers for outputting audio, video, and photographic

audio, video, or photographic information is outputted.	information.
11. The system of claim 1, wherein the central storage and interface device is capable of converting analog information into digital form.	Apple directly infringes this claim through testing and use of the claimed system for synchronizing its devices in a multimedia environment by and at the direction of its employees. Apple also indirectly infringes this claim by offering to sell and selling components of the claimed system that are found in the Accused Devices to customers and by encouraging and aiding those customers to use the Accused Devices in conjunction with the previously accused Apple products in a manner that meets each and every step of this claim. Apple's iMac, MacBook Air, MacBook Pro, Mac Mini, and Mac Pro, as well as non-Apple PCs with iTunes (collectively the "Central Devices") are capable of converting analog information into a digital form. For example, the microphone jack on Apple's computers can be used to convert analog information inputted from vinyl record players, cassette players and microphones into a digital form. In another example, the digital camera on Apple's computers can be used to convert analog image information into digital form. On information and belief, Apple's iCloud service is also capable of converting analog information into digital form.
12. The system of claim 1, wherein the zone specific storage and interface device is disposed to be coupled to a personal computer (PC).	Apple directly infringes this claim through testing and use of the claimed system for synchronizing its devices in a multimedia environment by and at the direction of its employees. Apple also indirectly infringes this claim by offering to sell and selling components of the claimed system that are found in the Accused Devices to customers and by encouraging and aiding those customers to use the Accused Devices in conjunction with the previously accused Apple products in a manner that meets each and every step of this claim. The Zone Devices are disposed to be coupled to a Central Device, such as a computer or Apple's iCloud service, by LAN and WAN as described with respect to claims 3, 4, 14 and 15. The iPhone 5 is also disposed to be coupled directly to a personal computer (PC) via a USB cable. The iMac, MacBook Air, MacBook Pro, Mac Mini, Mac Pro, and Apple TV are also disposed to be coupled to other personal computers via at least ethernet and USB cables.
14. The system of claim 1 wherein the central storage and interlace	Apple directly infringes this claim through testing and use of the claimed system for synchronizing its devices in a multimedia environment by and at the direction of its employees. Apple also indirectly infringes this claim by offering to sell and selling components of the claimed system that are found in the Accused Devices to customers and by encouraging and aiding those customers to use the Accused Devices in conjunction with the previously

device is disposed to be coupled to a wireless mobile device via LAN.	accused Apple products in a manner that meets each and every step of this claim. See Claim 4. The iPhone 5 is a wireless mobile device that can be coupled to a Central Device via LAN (e.g., a hardwired connection or Wi-Fi).
15. The system of claim 1, wherein the central storage and interface device is disposed to be coupled to a wireless mobile device via WAN.	Apple directly infringes this claim through testing and use of the claimed system for synchronizing its devices in a multimedia environment by and at the direction of its employees. Apple also indirectly infringes this claim by offering to sell and selling components of the claimed system that are found in the Accused Devices to customers and by encouraging and aiding those customers to use the Accused Devices in conjunction with the previously accused Apple products in a manner that meets each and every step of this claim. See Claim 3. The iPhone 5 is a wireless mobile device that can be coupled to a Central Device via WAN (e.g., the Internet over a cellular network).

EXHIBIT E

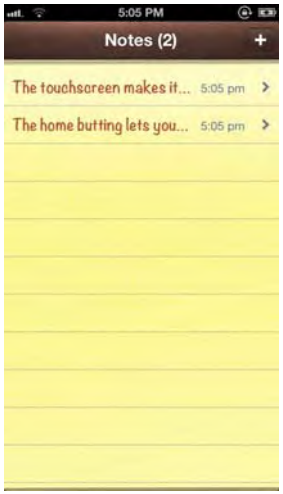
SAMSUNG'S AMENDED PATENT L.R. 3-1(A)-(D) DISCLOSURES FOR U.S. PATENT NO. 7,232,058

ASSERTED CLAIM (PATENT L.R. 3-1(A))	ACCUSED INSTRUMENTALITY AND HOW EACH ELEMENT IS MET BY ACCUSED INSTRUMENTALITY (PATENT L.R. 3-1(B)-(D))
1. A data displaying apparatus comprising:	Apple infringes this claim by manufacturing, using, importing, selling and offering for sale the iPhone 5 (the "Accused Device") that comprises a data displaying apparatus.
a user input unit for outputting a data-display request signal if there is a data-display request from a user;	The Accused Device has a touchscreen and a home button that are user input units. On information and belief, the touchscreen firmware that operates and is pre-loaded on the Accused Device outputs a data-display request signal if there is a data-display request from a user. The home button on the Accused Device outputs a data-display request signal upon being pressed by the user.
a memory unit for storing a plurality of data and a plurality of identification information corresponding to said plurality of data;	The Accused Device has a memory unit comprised of internal flash memory and dynamic random access memory for storing a plurality of data and a plurality of identification information corresponding to such data (e.g., icons, folder names, file names, and pictures).
a display unit for displaying the plurality of data;	The Accused Device has a screen for displaying the plurality of data.
and a controller for controlling said display unit to display the plurality of identification information if said data display request signal is inputted by the user,	The Accused Device has a controller that controls the display unit to display a plurality of identification information upon request by the user. For example, the Accused Device runs using an A6 processor that includes a graphical processor unit that is a specialized electronic circuit designed to rapidly manipulate and alter memory in such a way so as to accelerate the building of images in a frame buffer intended for output to a display. The Accused Device stores and displays many types of identification information. For example, when a user presses the home button on the Accused Device, a plurality of icons and/or folders of icons is displayed:[1]

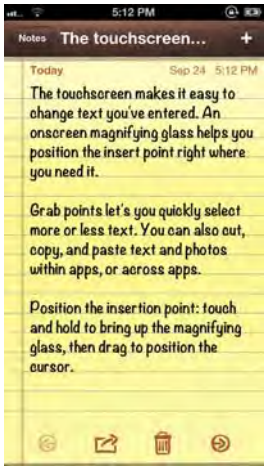
[1] Screen images show the operation of the Accused Device running iOS 6.0 unless otherwise noted. Previously accused devices (as identified in Samsung's original infringement contentions that were served on June 15, 2012) that also run on iOS 6.0 operate in substantially the same way.

In another example, when a uses touches a folder of icons (i.e., a plurality of identification information), the icons contained within that folder are displayed:

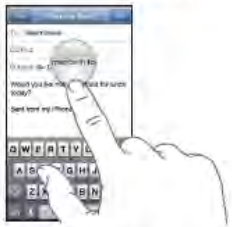
In a further example, when a user touches the "Notes" icon, a list of the user's Notes (i.e., a plurality of identification information) is displayed:

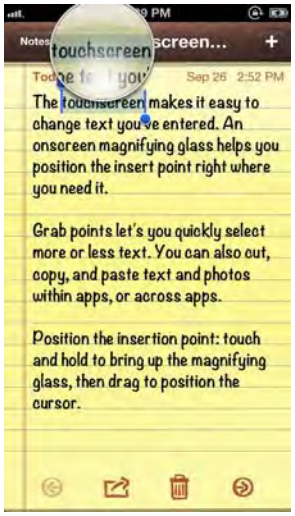


In another example, when a when a user opens an inbox in the "Mail" application, a list of the user's email filenames (i.e., a plurality of identification information) is displayed as shown in this screenshot from an iPhone 5:

display data corresponding to specific identification information via a first layer if the specific identification information is selected from among the plurality of identification information,	The Accused Device has a controller that controls the display unit to display data corresponding to a specific identification information (e.g., a particular icon, folder, file name or picture) when selected by a user. For example, when a user selects a particular note from the list of "Notes", the Accused Device displays that note (i.e., data corresponding to specific identification information) via a first layer:  In another example, when a user selects an email file, the Accused Device displays that email file (i.e., data corresponding to specific identification information) via a first layer:

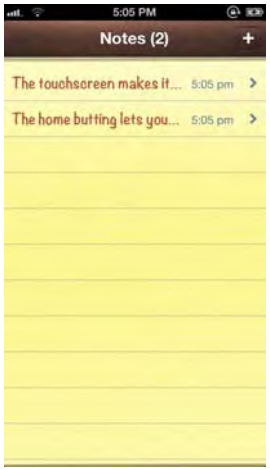
	
and display a specific area of the specific information in an enlarged form via a second layer if the specific area is selected from the specific identification information of the first layer.	The Accused Device allows for the use of a magnifying glass in text fields in certain applications that are pre-loaded by Apple on the Accused Device, including Safari, Notes, Calendar, Mail and Contacts. As described in the iPhone User Guide for iOS 6.0 software:

	Editing text If you need to edit text, an onscreen magnifying glass lets you position the insertion point where you need it. You can select text, and cut, copy, and paste text. In some apps, you can also cut, copy, and paste photos and videos. **Position the insertion point:** Touch and hold to bring up the magnifying glass, then drag to position the insertion point.  **Select text:** Tap the insertion point to display the selection buttons. Tap Select to select the adjacent word, or tap Select All to select all text. You can also double-tap a word to select it. Drag the grab points to select more or less text. In read-only documents, such as webpages, touch and hold to select a word. In the "Notes" application, as displayed below for example, upon selection of the word "touchscreen" by the user using its finger on the touchscreen, the Accused Device displays that specific area in an enlarged form via a second layer:

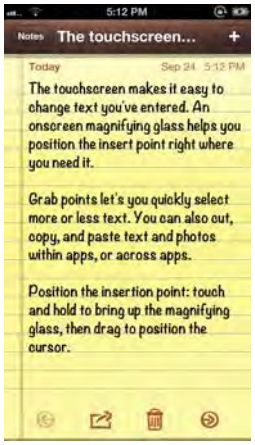


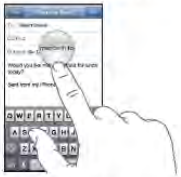
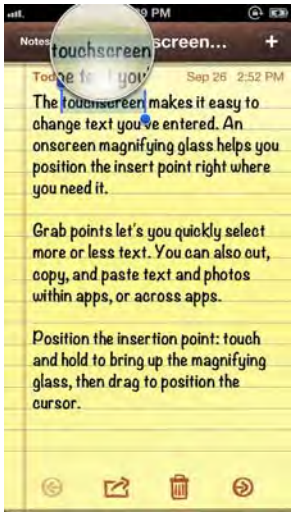
In the "Mail" application, as displayed below for example, upon selection of the word "Package" by the user using its finger on the touchscreen, the Accused Device displays that specific area in an enlarged form via a second layer:

4. The data displaying apparatus as set forth in claim 1, wherein each of said plurality of identification information is a file name.	Apple infringes this claim by manufacturing, using, importing, selling and offering for sale the iPhone 5 (the "Accused Device") that comprises a data displaying apparatus. The Accused Device stores and displays a plurality of identification information as file names. For example, in the Messages application, the identification information is the name of the message file. In another example, in the Mail application, the identification information is the subject matter name of the email file.
9. A data displaying method comprising:	Apple infringes this claim by manufacturing, using, importing, selling and offering for sale the iPhone 5 (the "Accused Device") that performs each and every step of this claim. Apple also indirectly infringes this claim by offering to sell and selling the Accused Device that performs the claimed methods to customers and by encouraging and aiding those customers to use those products in a manner that meets each and every step of this claim.
displaying a plurality of identification information corresponding respectively to a plurality of data if a data-display request signal is inputted by a user;	The Accused Device displays a plurality of identification information (e.g., icons, folder names, file names, and pictures) if a data-display request signal is inputted by a user. For example, when a user presses the home button on the Accused Device, the Accused Device displays a plurality of icons and/or folders of icons:  In another example, when a uses touches a folder of icons (i.e., a plurality of identification

	information), the Accused Device displays the icons contained within that folder:  In a further example, when a user touches the "Notes" icon, for example, the iPhone displays a list of the user's Notes (i.e., a plurality of identification information): 

	In another example, when a when a user opens an inbox in the "Mail" application, a list of the user's email filenames (i.e., a plurality of identification information) is displayed as shown in this screenshot from an iPhone 5: 
displaying specific data corresponding to a specific one of the plurality of identification information via a first layer if the specific identification information is selected from the plurality of identification information;	The Accused Device displays specific data corresponding to a specific one of the plurality of identification information (e.g., a particular icon, folder, file name or picture) that is selected by a user. For example, when a user selects a particular note from the list of "Notes", the Accused Device displays that note (i.e., data corresponding to specific identification information) via a first layer:

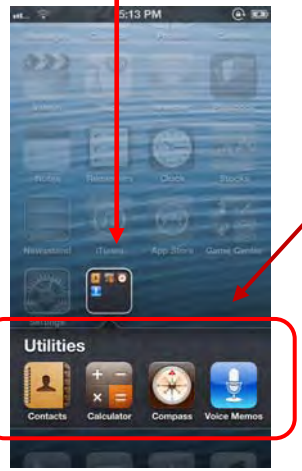
	 In another example, when a user selects an email file, the Accused Device displays that email file (i.e., data corresponding to specific identification information) via a first layer: 
and enlarging and displaying a specific area of the specific data of the first layer via a second layer if the specific area	The Accused Device allows for the use of a magnifying glass inside the text fields in certain applications that are pre-loaded by Apple on the Accused Device, including Safari, Notes, Calendar, Mail and Contacts.

is selected from the specific data displayed via the first layer, wherein the second layer enlarges the specific area.	As described in the iPhone User Guide for iOS 6.0 software: **Editing text** If you need to edit text, an onscreen magnifying glass lets you position the insertion point where you need it. You can select text, and cut, copy, and paste text. In some apps, you can also cut, copy, and paste photos and videos. **Position the insertion point:** Touch and hold to bring up the magnifying glass, then drag to position the insertion point.  **Select text:** Tap the insertion point to display the selection buttons. Tap Select to select the adjacent word, or tap Select All to select all text. You can also double-tap a word to select it. Drag the grab points to select more or less text. In read-only documents, such as webpages, touch and hold to select a word. In the "Notes" application, as displayed below for example, upon selection of the word "touchscreen" by the user using its finger on the touchscreen, the Accused Device displays that specific area in an enlarged form via a second layer: 

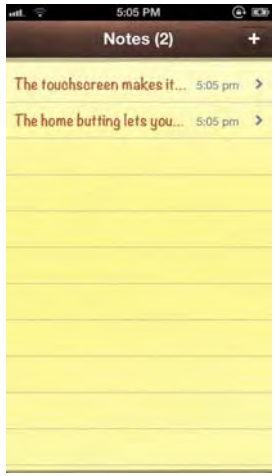
	In the "Mail" application, as displayed below for example, upon selection of the word "Package" by the user using its finger on the touchscreen, the Accused Device displays that specific area in an enlarged form via a second layer: 
12. The data displaying method as set forth in claim 9, wherein each of the plurality of identification information is a file name.	Apple infringes this claim by manufacturing, using, importing, selling and offering for sale the iPhone 5 (the "Accused Device") that performs each and every step of this claim. Apple also indirectly infringes this claim by offering to sell and selling the Accused Device that performs the claimed methods to customers and by encouraging and aiding those customers to use those products in a manner that meets each and every step of this claim. The Accused Device stores and displays a plurality of identification information as file names. For example, in the Messages application, the identification information is the name of the message file. In another example, in the Mail application, the identification information is the subject matter name of the email file.
17. A data displaying apparatus comprising:	Apple infringes this claim by manufacturing, using, importing, selling and offering for sale the iPhone 5 (the "Accused Device") that comprises a data displaying apparatus.
a user input unit for outputting	The Accused Device has a touchscreen and a home button that are user input units. On information

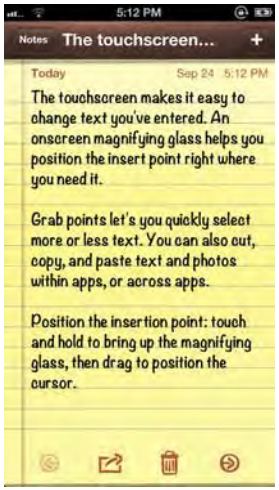
a data-display request signal if there is a data display request from a user;	and belief, the touchscreen firmware that operates and is pre-loaded on the Accused Device outputs a data-display request signal if there is a data-display request from a user. The home button on the Accused Device outputs a data-display request signal upon being pressed by the user.
a memory unit for storing a plurality of data and a plurality of identification information corresponding to said plurality of data;	The Accused Device has a memory unit comprised of internal flash memory and dynamic random access memory for storing a plurality of data and a plurality of identification information corresponding to such data (e.g., icons, folder names, file names, and pictures).
a display unit for displaying the plurality of data;	The Accused Device has a screen for displaying the plurality of data.
and a controller for controlling said display unit in response to the data-display request by the user to display the plurality of identification information,	The Accused Device has a controller that controls the display unit to display a plurality of identification information upon request by the user. For example, the Accused Device runs using an A6 processor that includes a graphical processor unit that is a specialized electronic circuit designed to rapidly manipulate and alter memory in such a way so as to accelerate the building of images in a frame buffer intended for output to a display. The Accused Device stores and displays many types of identification information. For example, when a user presses the home button on the Accused Device, a plurality of icons and/or folders of icons is displayed:

In another example, when a uses touches a folder of icons (i.e., a plurality of identification information), the icons contained within that folder are displayed:



In a further example, when a user touches the "Notes" icon, a list of the user's Notes (i.e., a plurality of identification information) is displayed:

	 In another example, when a when a user opens an inbox in the "Mail" application, a list of the user's email filenames (i.e., a plurality of identification information) is displayed as shown in this screenshot from an iPhone 5: 
said display unit further displaying data corresponding	The Accused Device has a controller that controls the display unit to display data corresponding to a specific identification information (a particular icon, folder, file name or picture) when selected by a

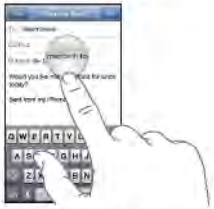
to specific identification information via a first layer if the specific identification information is selected from among the plurality of identification information,	user. For example, when a user selects a particular note from the list of "Notes", the Accused Device displays that note (i.e., data corresponding to specific identification information) via a first layer:  In another example, when a user selects an email file, the Accused Device displays that email file (i.e., data corresponding to specific identification information) via a first layer:

	
and displaying a specific area of the specific information in an enlarged form via a second layer if the specific area is selected from the specific identification information of the first layer.	The Accused Device allows for the use of a magnifying glass in text fields in certain applications that are pre-loaded by Apple on the Accused Device, including Safari, Notes, Calendar, Mail and Contacts. As described in the iPhone User Guide for iOS 6.0 software:

Editing text

If you need to edit text, an onscreen magnifying glass lets you position the insertion point where you need it. You can select text, and cut, copy, and paste text. In some apps, you can also cut, copy, and paste photos and videos.

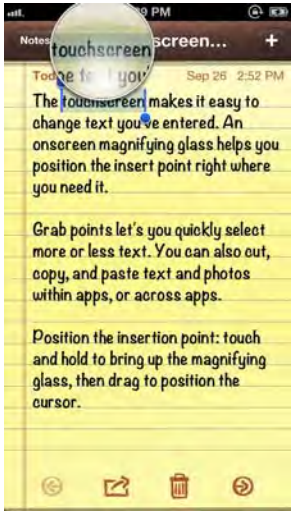
Position the insertion point: Touch and hold to bring up the magnifying glass, then drag to position the insertion point.



Select text: Tap the insertion point to display the selection buttons. Tap Select to select the adjacent word, or tap Select All to select all text.

You can also double-tap a word to select it. Drag the grab points to select more or less text. In read-only documents, such as webpages, touch and hold to select a word.

In the "Notes" application, as displayed below for example, upon selection of the word "touchscreen" by the user using its finger on the touchscreen, the Accused Device displays that specific area in an enlarged form via a second layer:



	In the "Mail" application, as displayed below for example, upon selection of the word "Package" by the user using its finger on the touchscreen, the Accused Device displays that specific area in an enlarged form via a second layer: 

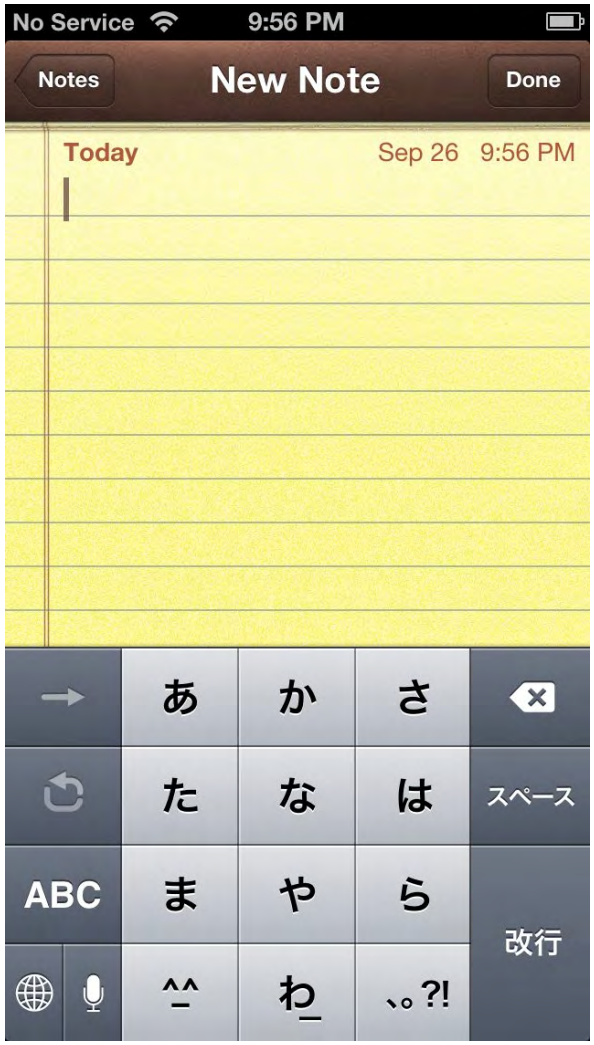
EXHIBIT F

SAMSUNG'S AMENDED PATENT L.R. 3-1(A)-(D) DISCLOSURES FOR U.S. PATENT NO. 6,292,179

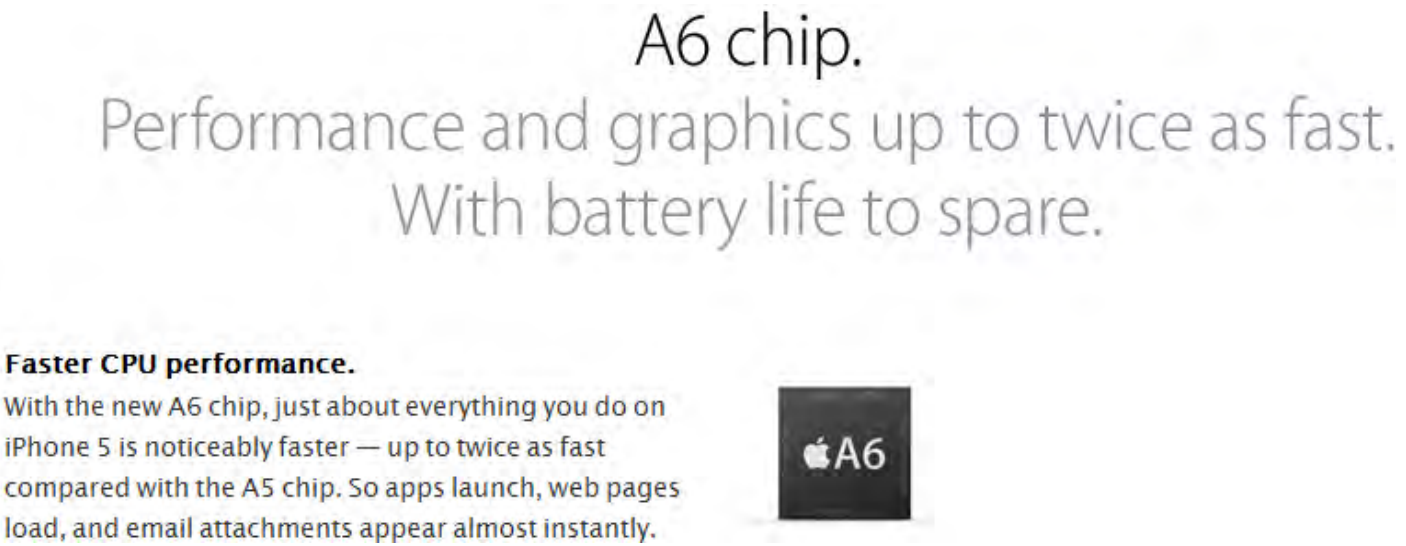
ASSERTED CLAIM (PATENT L.R. 3-1(A))	ACCUSED INSTRUMENTALITY AND HOW EACH ELEMENT IS MET BY ACCUSED INSTRUMENTALITY (PATENT L.R. 3-1(B)-(D))
1. A software keyboard system using a touch screen, comprising: [a] a screen displaying a keyboard image;	The iPhone 5 is a software keyboard system that uses a touch screen. *See, e.g.*, iPhone 5 technical specifications available at http://www.apple.com/iphone/specs.html: Display Retina display 4-inch (diagonal) widescreen Multi-Touch display 1136-by-640-pixel resolution at 326 ppi 800:1 contrast ratio (typical) 500 cd/m2 max brightness (typical) Fingerprint-resistant oleophobic coating on front Support for display of multiple languages and characters simultaneously  **Keyboard Support** English (U.S.), English (UK), Chinese – Simplified (Handwriting, Pinyin, Stroke), Chinese – Traditional (Handwriting, Pinyin, Zhuyin, Cangjie, Stroke), French, French (Canadian), French (Switzerland), German (Germany), German (Switzerland), Italian, Japanese (Romaji, Kana), Korean, Spanish, Arabic, Bulgarian, Catalan, Cherokee, Croatian, Czech, Danish, Dutch, Emoji, Estonian, Finnish, Flemish, Greek, Hawaiian, Hebrew, Hindi, Hungarian, Icelandic, Indonesian, Latvian, Lithuanian, Macedonian, Malay, Norwegian, Polish, Portuguese, Portuguese (Brazil), Romanian, Russian, Serbian (Cyrillic/Latin), Slovak, Swedish, Thai, Tibetan, Turkish, Ukrainian, Vietnamese

	The iPhone 5 displays a keyboard image, such as the Japanese (Kana) keyboard[1]:

[1] Screen images show the operation of the iPhone 5 running iOS 6.0 unless otherwise noted. Previously accused devices (as identified in Samsung's original infringement contentions that were served on June 15, 2012) that also run on iOS 6.0 operate in substantially the same way.

	
1[b] a touch panel on said screen, generating a	The iPhone 5 comprises a touch panel on said screen, generating a coordinate value in accordance with a position pressed by a stylus. For example, the iPhone 5 includes a multi-touch screen panel and associated circuitry. The associated circuitry includes, for example, a touch screen controller chip that generates a coordinate value according

coordinate value in accordance with a position pressed by a stylus;	to where the screen is touched (pressed) by, for example, the user's finger (stylus). Sample iPhone 5 touch screen controller chip, from teardown available at http://www.ifixit.com/Teardown/iPhone-5-Teardown/10525/3: 
1[c] a converter receiving said coordinate value and outputting a digital value;	The iPhone 5 comprises a converter receiving said coordinate value and outputting a digital value. *See* 1[b]. A digital value is necessary for processing by the iPhone's digital circuitry.
1[d] a memory storing: names of keys forming said keyboard image,	The iPhone 5 comprises a memory. *See, e.g.*, iPhone 5 technical specifications available at http://www.apple.com/iphone/specs.html:

for each of said keys, a plurality of respective key codes, and for each of said key codes, corresponding screen and direction range information;	 The iPhone 5 also include a processor with internal memory and access to RAM. For example, the iPhone 5 includes an A6 processor. *See, e.g.*, iPhone 5 features list available at http://www.apple.com/iphone/features/:  The iPhone 5 stores in memory the names of keys forming a keyboard image. Some keys are a assigned a plurality of respective key codes, which are also stored in memory. For example, the Japanese (Kana) numeric input keyboard assigns a plurality of key codes (5, +, x and ÷) to the key labeled “5”:

The key codes assigned to the “5” key are enlarged when the key is pressed and held:

The iPhone 5 stores in memory, for each of said key codes, corresponding screen and direction range information, as shown below. For example, other keyboards such as the Chinese (Stroke) keyboards assign different key codes to the same keys, and the different codes and keyboards are stored in memory and accessed as needed.

1[e] a controller controlling said display of said keyboard image, receiving said digital value for a trace of said stylus, and determining the position and direction of said trace;	The iPhone 5 comprises a controller controlling said display of said keyboard image, receiving said digital value for a trace of said stylus, and determining the position and direction of said trace. For example, the iPhone 5 includes a processor and associated chips and circuitry to control the display and process input from the touch screen. *See, e.g.*, 1[b-d]. When a user slides a finger (stylus) on, for example, a numeric key in the Japanese (Kana) keyboard, the iPhone 5 controller receives a digital value corresponding to the user's inputted trace and determines the position and direction of the trace. This is evident because, as shown below, the controller selects a key input based on the position and direction of the trace.
1[f] wherein said controller selects one of said key codes based on said position and on said direction of said trace, and	The iPhone 5's controller selects a key code based on the position and direction of a trace. For example, when a user slides a finger on top of the “5” key in the numeric Japanese (Kana) keyboard, one of the key codes assigned to the “5” key is selected. Sliding the finger to the left results in selecting and inputting the "+" key code:

Sliding the finger to the right results in selecting and inputting the "÷" key code:

Sliding the finger in the up direction results in selecting and inputting the "x" key code:

	
1[g] wherein said controller controls said screen to display, in said keyboard image, an image of said generated key	The iPhone 5's controller controls said screen to display, in said keyboard image, an image of said generated key code for a predetermined time after said controller selects said one of said key codes, and then to restore said image of said generated key code to its original state. For example, when the finger touches the “5” key from right to left, the "+" key code is selected. The selected key code is displayed for a predetermined amount of time:

code for a predetermined time after said controller selects said one of said key codes, and then to restore said image of said generated key code to its original state.	 After the predetermined amount of time has passed, the keyboard image is restored to its original state:

	
3. The software keyboard system of claim 1, wherein said controller controls said	The iPhone 5 comprises the software keyboard system of claim 1, wherein said controller controls said screen to enlarge only said generated key code. For example, when a finger traces an upward path starting in the “5” key area of the numeric Japanese (Kana) keyboard, the controller selects the "x" key code, and enlarges an image of only that key code. *See* claim 1; *see e.g.*, Sliding the finger in the up direction results in selecting and inputting the "x" key code, an image of which is enlarged:

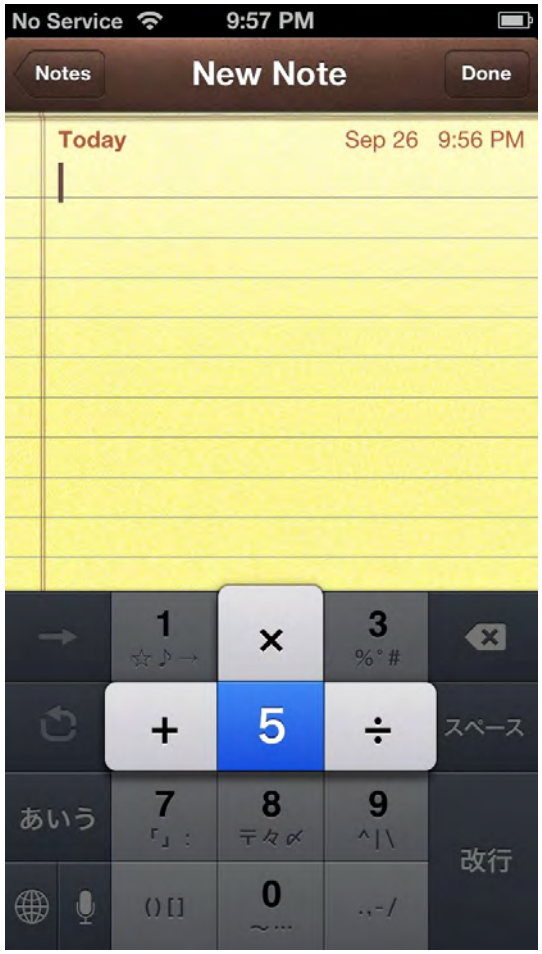
screen to enlarge only said generated key code.	
4. The software keyboard system of claim 1, wherein said memory further comprises:	The iPhone 5 comprises the software keyboard system of claim 1, wherein said memory also stores key code tables, each corresponding to one of said keys, storing said corresponding screen and direction range information of said plurality of respective key codes. This is evident because the information required to match key codes with corresponding trace gestures must be stored in memory. *See* claim 1.

[a] key code tables, each corresponding to one of said keys, storing said corresponding screen and direction range information of said plurality of respective key codes, and	
4[b] a key information table storing said names of keys and address information indicating, for each of said keys, the corresponding one of said key code tables.	The iPhone 5 comprises the software keyboard system of claim 1, wherein said memory also stores a key information table storing said names of keys and address information indicating, for each of said keys, the corresponding one of said key code tables. Such information must be stored in memory to allow the iPhone to look-up the appropriate key code corresponding to a particular trace in a specific key area. *See* claim 1.
5. The software keyboard system of claim	The iPhone 5 comprises the software keyboard system of claim 1, wherein said direction range information is different for each of said plurality of respective key codes of one of said keys. For example, each key code of the “5” is assigned to a different direction range; "÷" is right, "+" is left, etc. *See* claim 1[f]; *see generally* claim 1.

1, wherein said direction range information is different for each of said plurality of respective key codes of one of said keys.	
6. The software keyboard system of claim 5, wherein the direction range information of the key code includes a minimum value and a maximum value of said trace direction of said stylus.	The iPhone 5 comprises the software keyboard system of claim 5, wherein the direction range information of the key code includes a minimum value and a maximum value of said trace direction of said stylus. For example, each key code of the "5" key in the numeric Japanese (Kana) keyboard is assigned to a different direction range with a minimum and a maximum value. If, for example, a trace is directed upward it will be outside the direction range assigned to the "÷" or "+" key codes, but will be in the range of the "x" key code. *See* claim 1[f]; *see generally* claims 1, 5.
7. A method for recognizing key codes, in a software keyboard system using a touch panel, comprising the steps of:	The iPhone 5 performs a method for recognizing key codes, in a software keyboard system using a touch panel. *See* claim 1. The iPhone 5 performs the step of displaying an image of a keyboard including keys with a plurality of key codes. *See* claim 1[a, d]. Apple infringes this claim, and the dependent claims identified herein, because it has performed each and every claimed step, including but not limited to testing and use by its employees or agents. Apple also infringes the asserted claims by selling the iPhone to customers and encouraging those customers to use the products in a manner that meets each and every step of the claims.

(a) displaying an image of a keyboard including keys with a plurality of key codes;	
7(b) obtaining the trace of a stylus;	The iPhone 5 performs the step of obtaining the trace of a stylus. *See* claim 1[e].
7(c) determining a key area in which the trace of the stylus is drawn;	The iPhone 5 performs the step of determining a key area in which the trace of the stylus is drawn. *See* claim 1[e-f].
7(d) obtaining a direction of the trace drawn on the determined key area;	The iPhone 5 performs the step of obtaining a direction of the trace drawn on the determined key area. *See* claim 1[e-f].
7(e) searching key code information in accordance with the key area and the trace direction to	The iPhone 5 performs the step of searching key code information in accordance with the key area and the trace direction to generate a selected key code of the plurality of key codes of the key area. *See* claim 1[e-f].

generate a selected key code of the plurality of key codes of the key area; and	
7(f) displaying on the image of the keyboard an image of the key code generated by step (e) to be distinguished from the others of the plurality of key codes, and then restoring the image to its original state.	The iPhone 5 performs the step of displaying on the image of the keyboard an image of the key code generated by step (e) to distinguish it from the other available key codes, and then restoring the image to its original state. *See* claim 1[g].
8. The method of claim 7, wherein the step (b) of obtaining the trace of the stylus, comprises the steps of: (b1) obtaining a	The iPhone 5 performs the method of claim 7, wherein the step (b) of obtaining the trace of the stylus also comprises the step of obtaining a coordinate value of a start point of the trace. This information is necessary to determine whether the trace begins within a specific key area (such as the area on the screen corresponding to the "5" key) and to determine the direction of the trace. *See* claim 1[f]; *see generally* claim 7. Furthermore, the iPhone 5 performs the step of obtaining a coordinate value in which the stylus contacts the touch panel, after a predetermined time. For example, if the "5" key in the numeric Japanese (Kana) keyboard is touched in the same location for a predetermine period of time, the iPhone 5 displays the image below:

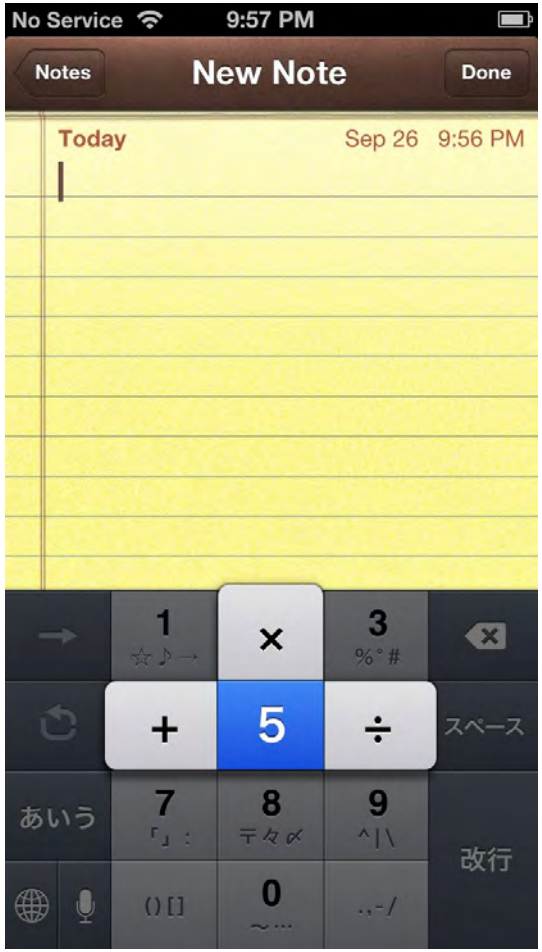
coordinate value of a start point of the trace; (b2) obtaining a coordinate value in which the stylus contacts the touch panel, after a predetermined time; and (b3) determining whether the point obtained in the step (b2) is an end point, thereby obtaining the end point of the trace.	 Similarly, the iPhone 5 performs the step of determining whether the point obtained in the step (b2) is an end point, thereby obtaining the end point of the trace. For example, if instead of continuously touching the "5" key in the same location as described above the user slides the finger within the predetermined time, the iPhone determines that a trace endpoint has been input and generates a key code corresponding to the trace direction. *See* claim 1[f].
10. The method	The iPhone 5 performs the method of claim 7, wherein step (c) includes checking whether a part of coordinate values

of claim 7, wherein step (c) includes checking whether a part of coordinate values of the trace drawn by the stylus is within the range defined as a key area.	of the trace drawn by the stylus is within the range defined as a key area. For example, if no part of a trace is within the coordinate values of the "5" key in the numeric Japanese (Kana) keyboard, none of the key codes assigned to that key will be selected. *See* claims 1, 7.
11. A method for recognizing key codes, in a software keyboard system using a touch panel, comprising the steps of: (a) displaying an image of a keyboard including keys with a plurality of key codes;	The iPhone 5 performs the claimed method for recognizing key codes, in a software keyboard system using a touch panel. The iPhone 5 performs the step of displaying an image of a keyboard including keys with a plurality of key codes. *See* claim 1[a-c]. Apple infringes this claim because it has performed each and every step of this claim, including but not limited to testing and use by its employees or agents. Apple also infringes this claim by selling the iPhone to customers and encouraging those customers to use the products in a manner that meets each and every step of this claim.
(b) obtaining the trace of a stylus;	The iPhone 5 performs the step of obtaining the trace of a stylus. The trace is necessary, for example, to determine which key code to select. *See* claims 1, 7.

(c) determining a key area in which the trace of the stylus is drawn;	The iPhone 5 performs the step of determining a key area in which the trace of the stylus is drawn. The key area information is necessary to determine which key code to select. For example, the key codes assigned to the "5" key area in the numeric Japanese (Kana) keyboard are different from the key codes assigned to other keys. *See* claims 1, 7; *see also*: iPhone 5 numeric Japanese (Kana) keyboard:

	
(d) obtaining a direction of the trace drawn on the determined key area; and	The iPhone 5 performs the step of obtaining a direction of the trace drawn on the determined key area. This information is necessary to determine the correct key code that corresponds to each trace, because the different key codes are associated with different trace directions (e.g., up, left, right, etc.). *See* claim 1[f]; *see generally* claims 1, 7.

(e) searching key code information in accordance with the key area and the trace direction to generate a selected key code of the plurality of key codes of the key area,	The iPhone 5 performs the step of searching key code information in accordance with the key area and the trace direction to generate a selected key code of the plurality of key codes of the key area. This information is used to determine the correct key code that corresponds to each trace, because the different key codes are associated with different trace directions (e.g., up, left, right, etc.) in each key area. *See* claim 1[f]; *see generally* claims 1, 7.
wherein said step (d) comprises the steps of: (d1) obtaining a vector composed of coordinate values of a start point and an end point of the	The iPhone 5 performs step (d), wherein the step comprises obtaining a vector composed of coordinate values of a start point and an end point of the stylus trace. The start and end coordinate values are necessary to determine, for example, whether a trace begins within a specific key area. *See* claim 1[f]; *see generally* claims 1, 7. The iPhone 5 performs step (d), wherein the step comprises calculating the magnitude of the obtained vector, comparing the magnitude of the vector with the magnitude of a reference vector, and determining a trace direction to be zero when the vector magnitude is smaller than the magnitude of the reference vector, and obtaining the trace direction by calculating an angle between the vector and a reference line when the magnitude of the vector is larger than the magnitude of the reference vector. For example, if the user slides the finger only a very small distance within the area of the "5" key in the numeric Japanese (Kana) keyboard, the iPhone disregards the trace and

stylus trace; (d2) calculating the magnitude of the obtained vector; (d3) comparing the magnitude of the vector with the magnitude of a reference vector; and (d4) determining a trace direction to be zero when the vector magnitude is smaller than the magnitude of the reference vector, and obtaining the trace direction by calculating an angle between the vector and a reference line when the magnitude of	interprets the touch as if the user had just pressed and held the “5” key:  The iPhone 5 make this determination by comparing the magnitude of the small trace to a reference magnitude of a reference vector. If the magnitude of an inputted trace is larger than that of the reference vector, the trace is used to identify a key code. In that case The iPhone 5 calculate the direction of the inputted trace by obtaining an angle between the inputted trace and a reference line. For example, at a certain angle the trace direction will be determined to be "left" and the "+" keycode will be selected. A different angle from the reference line will correspond, for

the vector is larger than the magnitude of the reference vector.	example, to the "right" direction and the "÷" key code will be selected. *See* claim 1[f].

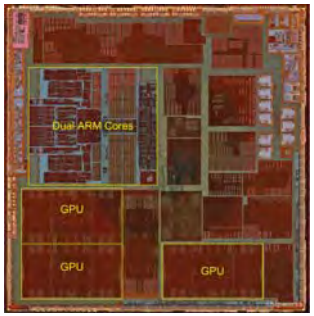
EXHIBIT G

SAMSUNG'S AMENDED PATENT L.R. 3-1(A)-(D) DISCLOSURES FOR U.S. PATENT NO. 6,226,449

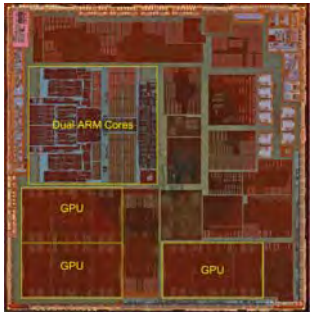
ASSERTED CLAIM (PATENT L.R. 3-1(A))	ACCUSED INSTRUMENTALITY AND HOW EACH ELEMENT IS MET BY ACCUSED INSTRUMENTALITY (PATENT L.R. 3-1(B)-(D))
25. A digital camera comprising:	Apple infringes this claim by manufacturing, using, importing, selling and offering for sale the iPhone 5 (the "Accused Device") that comprises a digital camera.
a lens,	The Accused Device has at least one lens. For example, the rear-facing lens of an iPhone 5 can be seen in the upper left hand corner of the back of the device:[1] 
an imaging device which converts an optical image into an analog signal;	On information and belief, the Accused Device has an imaging device that converts an optical image into an analog signal. The Accused Device uses a CMOS Image Sensor (or similar device) that converts an optical image into an electronic analog signal. For example, the iPhone 5's CMOS Image Sensor is depicted below:

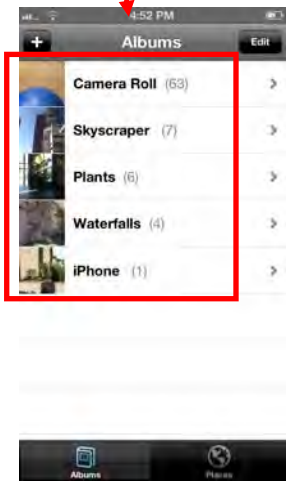
[1] Screen images show the operation of the Accused Device running iOS 6.0 unless otherwise noted. Previously accused devices (as identified in Samsung's original infringement contentions that were served on June 15, 2012) that also run on iOS 6.0 operate in substantially the same way.

	
an A/D converter which converts said analog signal from said imaging device to a digital signal;	On information and belief, the Accused Device has an imaging device that converts an analog signal into a digital signal. The Accused Device uses a CMOS Image Sensor (or similar device) that has an A/D converter that converts an analog signal into a digital signal. For example, the iPhone 5's CMOS Image Sensor is depicted below: 
a compressor which compresses said digital signal outputted from said A/D converter, and generates compressed data by	On information and belief, the Accused Device has a compressor which compresses the digital signal outputted by the A/D converter. The Accused Device compresses moving image data by a different method than it compresses still image data. For example, the Accused Device runs on the A6 processor, which has a video encoder that utilizes at least the H.264 and MPEG-4 standards for compressing moving images and the JPEG standard for compressing still images. The iPhone 5's A6 processor is depicted below:

using a different compressing method for moving image signals and for still image signals;	 Apple's specifications for the iPhone 5 identify the following supported video formats:[2] Video formats supported: H.264 video up to 1080p, 30 frames per second, High Profile level 4.1 with AAC-LC audio up to 160 Kbps, 48kHz, stereo audio in .m4v, .mp4, and .mov file formats; MPEG-4 video up to 2.5 Mbps, 640 by 480 pixels, 30 frames per second, Simple Profile with AAC-LC audio up to 160 Kbps per channel, 48kHz, stereo audio in .m4v, .mp4, and .mov file formats; Motion JPEG (M-JPEG) up to 35 Mbps, 1280 by 720 pixels, 30 frames per second, audio in ulaw, PCM stereo audio in .avi file format
a recording circuit which records compressed data, said compressed data including a moving image signal, and a still image signal;	On information and belief, the Accused Device has a recording circuit that records both compressed moving image data and compressed still image data to a NAND flash module for storage.
a decompressor which decompresses said compressed data by using a different	On information and belief, the Accused Device has a decompressor which decompresses the compressed digital data. The Accused Device decompresses compressed moving image data by a different method than it decompresses compressed still image data. For example, the Accused Device runs an A6 processor that has a video decoder that utilizes the H.264 and MPEG-4 standards for decompressing moving images and the JPEG

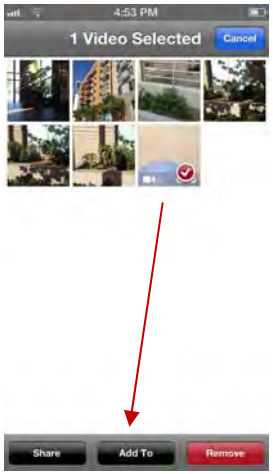
[2] Apple, iPhone 5 "Tech Specs," http://www.apple.com/iphone/specs.html (last visited September 26, 2012).

decompressing method according to whether said recorded compressed data is a moving image signal or a still image signal;	standard for decompressing still images. For example, the iPhone 5's A6 processor is depicted below: 
a reproducing circuit which reproduces a moving image signal, a sound signal in synchronous to said moving image signal, and a still image signal; and	On information and belief, the Accused Device has a reproducing circuit which can reproduce a moving image signal, a sound signal that is synchronous to a moving image signal, and a still image signal. For example, the Accused Device runs on the A6 processor that has a graphical processing unit (GPU) that is a specialized electronic circuit designed to rapidly manipulate and alter memory in such a way so as to accelerate the building of images in a frame buffer intended for output to a display. For example, the iPhone 5's A6 processor has a triple-core PowerVR SGX 543MP3 GPU inside. On information and belief, the Accused Device's display has one or more display drivers for converting received imaged data from the GPU into an image signal capable of being displayed by the display.
a display which displays said moving image signals and still image signals outputted from said reproducing circuit, and a list of said moving image signal and still image signal as a search mode, and a list of	The Accused Device has a display which can display moving image signals and still image signals that are outputted from the reproducing circuit. The Accused Device displays these image signals within the "Photos" application that is pre-loaded by Apple on each Accused Device that is sold. The display lists the moving image signals and still image signals in a search mode within the "Photos" application that Apple refers to as "Camera Roll":

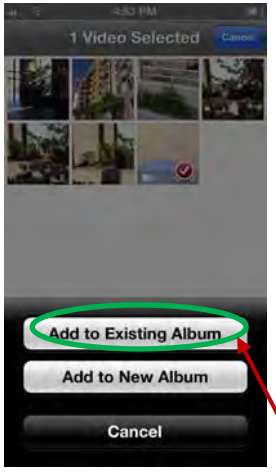
classifications as a classification mode;	 The display also lists the classifications (i.e., “Albums”) as a classification mode. The Accused Device allows the user to arbitrarily create classifications. The display displays the list of classification when the user clicks the "Albums" button in the upper left hand corner. One example of a list of Albums is shown below: 

wherein said recording circuit records each one of said plurality of image signals with classification data, and	On information and belief, the Accused Device has a recording circuit that records the classification data (i.e., the identification of the Albums that contain a particular image signal) for each moving image signal and still image signal that is recorded.
said display lists a plurality of classifications and a number of images belonging to each classification.	The Accused Device has a display that lists the Albums (i.e., the plurality of classifications) and images representing the image signals that are in each Album. One example of a list of a plurality of classifications (i.e., a list of Albums) is shown above, including the number of images belonging to each classification (i.e., an Album) . One example of a list of a number of images belonging to a classification (i.e., an Album) is shown below: 
27. A digital camera according to claim 25, wherein said	Apple infringes this claim by manufacturing, using, importing, selling and offering for sale the iPhone 5 (the "Accused Device") that comprises a digital camera. The Accused Device allows for the classification of a particular image signal to be changed at the direction of the user.

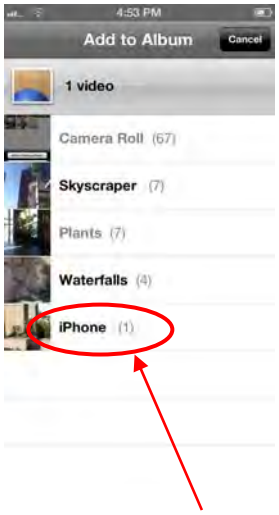
classification is able to change by a direction of a user.	For example, a user can use the Photos Application to add a moving image signal in one classification into another classification. First, the Accused Device provides a icon labeled “Edit” (shown by the arrow) that a user may touch to select one or more image signals:  After the 'Edit" icon is pressed by the user, the display displays this screen:  A moving image signal is identified and distinguished from the still images signals by the movie camera and video duration shown at the bottom of the reduced size image. After the moving image signal is selected by the user, the display displays this screen:



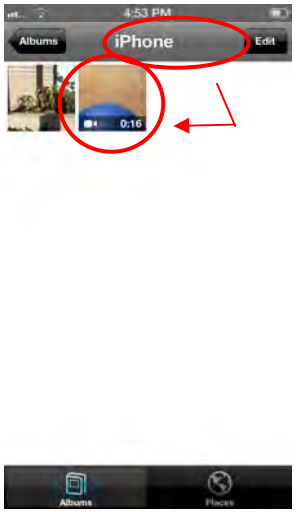
After the "Add To" Button is pressed by the user, the display displays this screen, which allows the user to add the selected image signal to an existing classification or a new classification:



After the "Add to Existing Album" is pressed by the user, the display displays this screen:

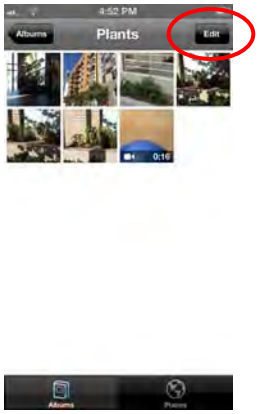


After the "iPhone" Album is pressed by the user, the display displays this screen, indicating that the moving image signal has a new classification and is now listed as being within "iPhone" classification:



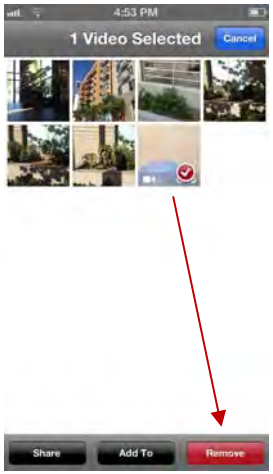
The user may then delete the moving image signal from its original album. The Accused Device provides a icon labeled “Edit” on the "Plants" album screen that a user may touch to select one or more image signals

within that album:

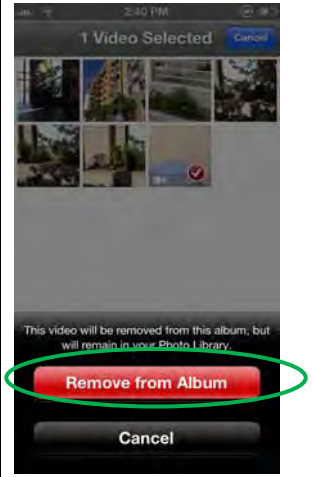


After the 'Edit" icon is pressed by the user, the display displays this screen:

After the moving image signal is selected by the user, the display displays this screen:



After the "Remove" Button is pressed by the user, the display displays this screen, which allows the user to remove the selected image signal from the album:



After the "iPhone" Album is pressed by the user, the display displays this screen, indicating that the moving

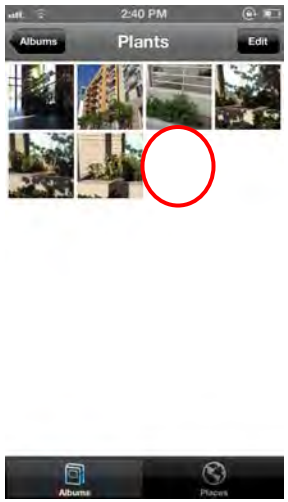
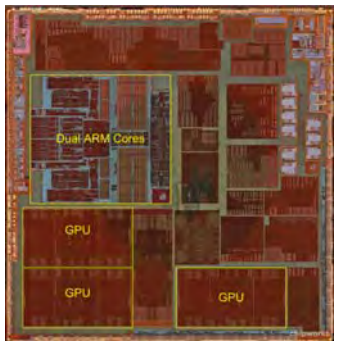
	image signal has been removed from the "Plants" album: 

EXHIBIT H

SAMSUNG'S AMENDED PATENT L.R. 3-1(A)-(D) DISCLOSURES FOR U.S. PATENT NO. 5,579,239

ASSERTED CLAIM (PATENT L.R. 3-1(A))	ACCUSED INSTRUMENTALITY AND HOW EACH ELEMENT IS MET BY ACCUSED INSTRUMENTALITY (PATENT L.R. 3-1(B)-(D))
1. An apparatus for transmission of data, comprising:	Apple directly infringes this claim through testing and use of the claimed apparatus for transmitting data by and at the direction of its employees. Apple also indirectly infringes this claim by offering to sell and selling components of the claimed apparatus that are found in the iPhone 5, iMac, MacBook Air, MacBook Pro, Mac Mini, Mac Pro, and PCs with iTunes (collectively the "Accused Devices") to customers and by encouraging and aiding those customers to use the products in a manner that meets each and every step of this claim.[1]
a mobile remote unit including:	The iPhone 5 is a mobile remote unit ("Mobile Remote Unit").
a.) means for capturing, digitizing, and compressing at least one composite signal;	The Mobile Remote Unit has a means for capturing, digitizing and compressing a composite signal into a digital file. On information and belief, the iPhone 5 uses a CMOS Image Sensor that converts an optical image into an electronic analog signal, and then uses an A/D converter that converts the analog signal into a digital signal. The iPhone 5's CMOS Image Sensor is depicted below:  **(iPhone 5's CMOS Sensor, http://www.ifixit.com/Teardown/iPhone-5-Teardown/10525/4, viewed 09/25/2012)**

[1] In its original infringement contentions served on June 15, 2012, Samsung alleged that the iPhone (4 and 4S), iPod Touch (4th generation), iPad (all generations), iMac, MacBook Air, MacBook Pro, Mac Mini, Mac Pro, and PCs with iTunes were collectively the "Accused Devices" that have been used by Apple and its customers to create an apparatus that infringe claims 1-7 of the '239 patent. Of those, the previously accused devices that now run on the newly released iOS 6.0 (the same operating system that ships with the iPhone 5) operate in substantially the same way as described herein.

	http://www.ifixit.com/Teardown/iPhone-5-Teardown/10525/4http://www.ifixit.com/Teardown/iPhone-5-Teardown/10525/4The iPhone 5's A6 processor with a graphical processing unit (GPU) captures the digital composite signal and uses a video encoder that utilizes at least the H.264 and MPEG-4 standards for compressing the digital signal into a compressed digital file.[2] For example, the iPhone 5's A6 processor is depicted below:  **(A6 Processor, http://www.ifixit.com/Teardown/Apple-A6-Teardown/10528/2, viewed 09/25/2012)** According to Apple's website, the iPhone 5 capture video in HD format at up to 30 frames per second:

[2] The previously accused devices have an A4 and A5 processors which operate in substantially the same manner as the iPhone 5's A6 processor.

	Camera, Photos, and Video 8-megapixel iSight camera Panorama Video recording, HD (1080p) up to 30 frames per second with audio FaceTime HD camera with 1.2MP photos and HD video (720p) up to 30 frames per second Autofocus Tap to focus video or still images Face detection in video or still images LED flash Improved video stabilization Photo and video geotagging    **(http://www.apple.com/iphone/specs.html, viewed 09/25/2012)** Apple's website further describes that the iPhone 5 supports numerous video compression standards: Video formats supported: H.264 video up to 1080p, 30 frames per second, High Profile level 4.1 with AAC-LC audio up to 160 Kbps, 48kHz, stereo audio in .m4v, .mp4, and .mov file formats; MPEG-4 video up to 2.5 Mbps, 640 by 480 pixels, 30 frames per second, Simple Profile with AAC-LC audio up to 160 Kbps per channel, 48kHz, stereo audio in .m4v, .mp4, and .mov file formats; Motion JPEG (M-JPEG) up to 35 Mbps, 1280 by 720 pixels, 30 frames per second, audio in ulaw, PCM stereo audio in .avi file format **(http://www.apple.com/iphone/specs.html, viewed 09/25/2012)** The iPhone 5's User Guide describes using the iPhone 5's Facetime Camera and app for capturing, digitizing, and compressing at least one composite signal.

(iPhone User Guide for iOS 6 Software, pg. 7)

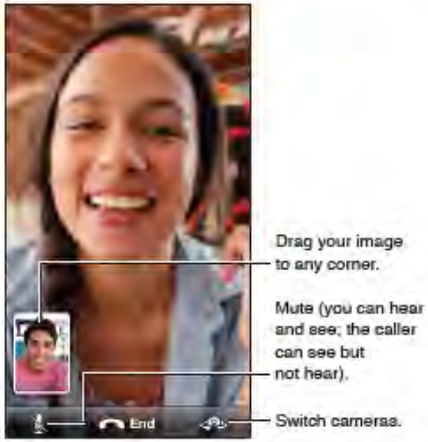
FaceTime

With iPhone 4 or later, you can make a video call to someone with a Mac or other iOS device that supports FaceTime. The FaceTime camera lets you talk face-to-face; switch to the iSight camera on the back to share what you see around you.

Note: On iPhone 3GS or iPhone 4, you need a Wi-Fi connection to the Internet. On iPhone 4S or later, you can also make FaceTime calls over a cellular data connection. Cellular data charges may apply. To turn off FaceTime using cellular data, go to Settings > General > Cellular.

Make a FaceTime call: In Contacts, choose a name, tap FaceTime, then tap the phone number or email address that the person uses for FaceTime.

To call someone who has an iPhone 4 or later, you can start by making a voice call, then tap FaceTime.



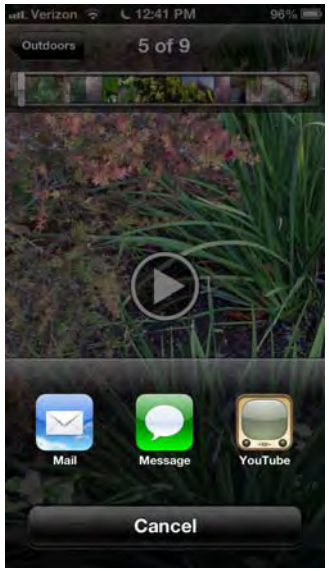
Note: With FaceTime, your phone number is displayed even if caller ID is blocked or turned off.

Use Siri or Voice Control: Press and hold the Home button ☐, then say "FaceTime," followed by the name of the person to call.

Set FaceTime options: Go to Settings > FaceTime to:

- Turn FaceTime on or off
- Specify your Apple ID or an email address for receiving FaceTime calls

(iPhone User Guide for iOS 6, pg. 47)

b.) means for storing said composite signal;	The Mobile Remote Unit has a means for storing the composite signal, such as a NAND flash module or RAM.
c.) means for transmitting said composite signal;	On information and belief, the iPhone 5 has at least one of two types of computer interfaces for transmitting composite signals to a host unit.[3] First, the iPhone 5 has a baseband chip for transmitting the compressed composite signal across cellular frequencies. Second, the iPhone 5 also has a wireless chip for transmitting the compressed composite signal across Wi-Fi frequencies. A user can transmit videos from a iPhone 5 to a host unit over a cellular frequency using Apple's software components that are pre-loaded on the iPhone 5 as described in more detail below with respect to claim 15. For example, a user can email or message a video to any third party, or directly send the video for uploading to YouTube, over a cellular frequency as depicted here: 

[3] Some of the previously identified accused devices, i.e. iPod Touch, only have a wireless chip for transmitting the compressed composite signal across Wi-Fi frequencies.

	A user can also transmit videos from a iPhone 5 to a host unit over WiFi by using Apple's iTunes software. As described in the iPhone User's Guide, for example, Syncing With iTunes allows a user to transmit a copy of videos stored on the Mobile Remote Unit to a host unit: **Syncing with iTunes** Syncing with iTunes copies information from your computer to iPhone, and vice versa. You can sync by connecting iPhone to your computer, or you can set up iTunes to sync wirelessly with Wi-Fi. You can set iTunes to sync music, photos, videos, podcasts, apps, and more. For information about syncing iPhone with your computer, open iTunes, then choose iTunes Help from the Help menu. Set up wireless iTunes syncing: Connect iPhone to your computer. In iTunes on the computer, select your iPhone (under Devices), click Summary, then turn on "Sync over Wi-Fi connection." When Wi-Fi syncing is turned on, iPhone syncs every day. iPhone must be connected to a power source, iPhone and your computer must both be on the same wireless network, and iTunes must be open on your computer. For more information, see iTunes Wi-Fi Sync on page 136. **(iPhoneUser Guide For iOS 6 Software, pg. 16)** Additionally, a user can transmit video from a iPhone 5 to a host unit over either a cellular frequency or a Wi-Fi signal using Apple's FaceTime app, which is preloaded on the iPhone 5.

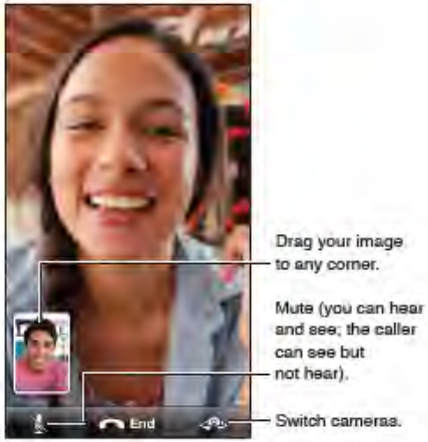
FaceTime

With iPhone 4 or later, you can make a video call to someone with a Mac or other iOS device that supports FaceTime. The FaceTime camera lets you talk face-to-face; switch to the iSight camera on the back to share what you see around you.

Note: On iPhone 3GS or iPhone 4, you need a Wi-Fi connection to the Internet. On iPhone 4S or later, you can also make FaceTime calls over a cellular data connection. Cellular data charges may apply. To turn off FaceTime using cellular data, go to Settings > General > Cellular.

Make a FaceTime call: In Contacts, choose a name, tap FaceTime, then tap the phone number or email address that the person uses for FaceTime.

To call someone who has an iPhone 4 or later, you can start by making a voice call, then tap FaceTime.



Note: With FaceTime, your phone number is displayed even if caller ID is blocked or turned off.

Use Siri or Voice Control: Press and hold the Home button ☐, then say "FaceTime," followed by the name of the person to call.

Set FaceTime options: Go to Settings > FaceTime to:

- Turn FaceTime on or off
- Specify your Apple ID or an email address for receiving FaceTime calls

(iPhone User Guide for iOS 6, pg. 47)

a host unit including:	Apple's computers (i.e., iMac, MacBook Air, MacBook Pro, Mac Mini and Mac Pro) and non-Apple PCs with iTunes are each host units. Additionally, Facetime allows the iPhone 5 to act as a host computer. For example, Apple informs its customers: **Now your smile goes even further.** FaceTime for Mac makes it possible to talk, smile, and laugh with anyone on an iPad 2, iPhone 4, iPod touch, or Mac from your Mac.* So you can catch up, hang out, joke around, and stay in touch with just a click. Sure, it's great to hear a voice. But it's even better to see the face that goes with it. (http://www.apple.com/mac/facetime/, viewed 09/26/2012)
a.) means for receiving at least one composite signal transmitted by the remote unit;	On information and belief, Apple's computers and non-Apple PCs each have a computer interface(s) for receiving a composite signal transmitted by the remote unit either over cellular or Wi-Fi frequencies. Apple's software, as described below, works in conjunction with that computer interface(s) to allow a host computer unit to receive information from an iPhone 5.

	Syncing with iTunes Syncing with iTunes copies information from your computer to iPhone, and vice versa. You can sync by connecting iPhone to your computer, or you can set up iTunes to sync wirelessly with Wi-Fi. You can set iTunes to sync music, photos, videos, podcasts, apps, and more. For information about syncing iPhone with your computer, open iTunes, then choose iTunes Help from the Help menu. Set up wireless iTunes syncing: Connect iPhone to your computer. In iTunes on the computer, select your iPhone (under Devices), click Summary, then turn on "Sync over Wi-Fi connection." When Wi-Fi syncing is turned on, iPhone syncs every day. iPhone must be connected to a power source, iPhone and your computer must both be on the same wireless network, and iTunes must be open on your computer. For more information, see iTunes Wi-Fi Sync on page 136. **(iPhone User Guide For iOS 6 Software, pg. 16)**

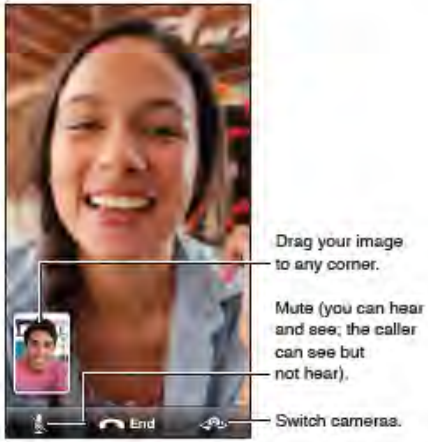
FaceTime

With iPhone 4 or later, you can make a video call to someone with a Mac or other iOS device that supports FaceTime. The FaceTime camera lets you talk face-to-face; switch to the iSight camera on the back to share what you see around you.

Note: On iPhone 3GS or iPhone 4, you need a Wi-Fi connection to the Internet. On iPhone 4S or later, you can also make FaceTime calls over a cellular data connection. Cellular data charges may apply. To turn off FaceTime using cellular data, go to Settings > General > Cellular.

Make a FaceTime call: In Contacts, choose a name, tap FaceTime, then tap the phone number or email address that the person uses for FaceTime.

To call someone who has an iPhone 4 or later, you can start by making a voice call, then tap FaceTime.



Note: With FaceTime, your phone number is displayed even if caller ID is blocked or turned off.

Use Siri or Voice Control: Press and hold the Home button ☐, then say "FaceTime," followed by the name of the person to call.

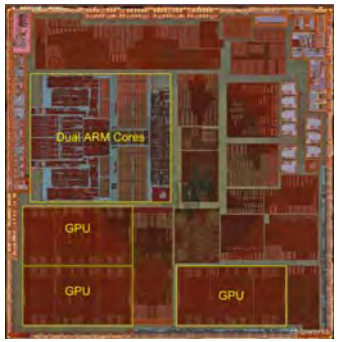
Set FaceTime options: Go to Settings > FaceTime to:

- Turn FaceTime on or off
- Specify your Apple ID or an email address for receiving FaceTime calls

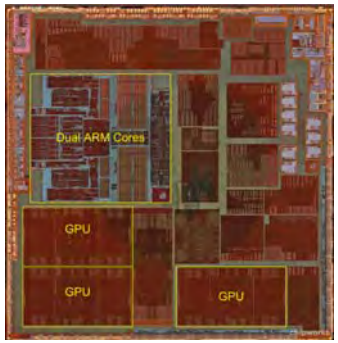
(iPhone User Guide for iOS 6, pg. 47)

a playback unit including:	On information and belief, the iPhone 5, Apple's computers, and non-Apple PCs each have a playback unit for playing the composite signal and displaying it to the user.
a.) means for exchanging data with said host unit;	On information and belief, the iPhone 5, Apple's computers and non-Apple PCs each have a circuit for exchanging the data received by the host computer's interface with the playback unit. Apple's software, such as Quicktime and Facetime, works in conjunction with that computer interface(s) and the circuit to allow a host unit to receive data from an iPhone 5 and transmit it to playback unit for playback unit.
b.) means for storing the composite signal received by the host unit;	The iPhone 5, Apple's computers and non-Apple PCs each have a hard or NAND flash module for storing the composite signal that is received by the host unit's interface from an iPhone 5 and then exchanged with the playback unit. For example, composite signals that are received by the host unit via email, messaging or Syncing with iTunes are transmitted to the playback unit and stored on the computer's hard or NAND flash module. Further, composite signals that are received by the host unit for the Facetime app are stored in a memory buffer, either the playback unit's hard drive or NAND flash module.
c.) means for decompressing said composite signal.	On information and belief, the iPhone 5, Apple's computers and non-Apple PC computers each have a graphical processing unit such as a video card, including a video decoder, for decompressing the compressed composite signal for playback. Further, on information and belief, Apple's software, including Facetime, decompresses the composite signal. For example, The iPhone 5 has an A6 processor with a graphical processing unit (GPU) that captures the digital composite signal and uses a video encoder that utilizes at least the H.264 and MPEG-4 standards for compressing the digital signal into a compressed digital file.[4] The iPhone 5's A6 processor is depicted below:

[4] The previously accused devices have an A4 and A5 processors which operate in substantially the same manner as the iPhone 5's A6 processor.

	 **(A6 Processor, http://www.ifixit.com/Teardown/Apple-A6-Teardown/10528/2, viewed 09/25/2012)**
2. An apparatus according to claim 1 wherein the host unit and the playback unit are combined in a single computer.	Apple directly infringes this claim through testing and use of the claimed apparatus for transmitting data by and at the direction of its employees. Apple also indirectly infringes this claim by offering to sell and selling components of the claimed apparatus that are found in the Accused Devices to customers and by encouraging and aiding those customers to use the products in a manner that meets each and every step of this claim. On information and belief, Apple's computers (iMac, MacBook Air, MacBook Pro, Mac Mini and Mac Pro) and non-Apple PC computers have both the host unit and the playback unit within the same single computer. Additionally, as Apple informs users on its website, Facetime allows the iPhone and Apple's computers to act as a host and playback unit.

	Now your smile goes even further. FaceTime for Mac makes it possible to talk, smile, and laugh with anyone on an iPad 2, iPhone 4, iPod touch, or Mac from your Mac.* So you can catch up, hang out, joke around, and stay in touch with just a click. Sure, it's great to hear a voice. But it's even better to see the face that goes with it.  **(http://www.apple.com/mac/facetime/, viewed 09/26/2012)**
3. An apparatus according to claim 1 wherein the composite signal is transmitted over telephone lines, cellular, radio or other telemetric frequencies.	Apple directly infringes this claim through testing and use of the claimed apparatus for transmitting data by and at the direction of its employees. Apple also indirectly infringes this claim by offering to sell and selling components of the claimed apparatus that are found in the Accused Devices to customers and by encouraging and aiding those customers to use the products in a manner that meets each and every step of this claim. The iPhone 5 can transmit composite signals to a host computer over cellular and other radio frequencies, including Wi-Fi frequencies.
4. An apparatus according to claim 3 further including means for splitting and organizing the digitized, compressed audio and/or video signal prior to transmission.	Apple directly infringes this claim through testing and use of the claimed apparatus for transmitting data by and at the direction of its employees. Apple also indirectly infringes this claim by offering to sell and selling components of the claimed apparatus that are found in the Accused Devices to customers and by encouraging and aiding those customers to use the products in a manner that meets each and every step of this claim. On information and belief, the iPhone 5 has software that splits and organizes the digitized, compressed audio and/or video signal prior to transmission to the host unit.
5. An apparatus	Apple directly infringes this claim through testing and use of the claimed apparatus for transmitting data by and

according to claim 1 wherein the means for capturing, digitizing, and compressing said composite signal includes a video capture device installed in said remote unit to capture said composite signal in real time.	at the direction of its employees. Apple also indirectly infringes this claim by offering to sell and selling components of the claimed apparatus that are found in the Accused Devices to customers and by encouraging and aiding those customers to use the products in a manner that meets each and every step of this claim. The iPhone 5 has a video capture device capture to the composite signal in real time. The iPhone 5 has an A6 processor with a graphical processing unit (GPU) that captures the digital composite signal and uses a video encoder that utilizes at least the H.264 and MPEG-4 standards for compressing the digital signal into a compressed digital file. For example, the iPhone 5's A6 processor is depicted below:  **(A6 Processor, http://www.ifixit.com/Teardown/Apple-A6-Teardown/10528/2, viewed 09/25/2012)** According to Apple's website, the iPhone 5 captures video in HD format at up to 30 frames per second:

	 **(http://www.apple.com/iphone/specs.html, viewed 09/25/2012)** Apple's website further describe that the iPhone 5 supports numerous video compression standards: Video formats supported: H.264 video up to 1080p, 30 frames per second, High Profile level 4.1 with AAC-LC audio up to 160 Kbps, 48kHz, stereo audio in .m4v, .mp4, and .mov file formats; MPEG-4 video up to 2.5 Mbps, 640 by 480 pixels, 30 frames per second, Simple Profile with AAC-LC audio up to 160 Kbps per channel, 48kHz, stereo audio in .m4v, .mp4, and .mov file formats; Motion JPEG (M-JPEG) up to 35 Mbps, 1280 by 720 pixels, 30 frames per second, audio in ulaw, PCM stereo audio in .avi file format **(http://www.apple.com/iphone/specs.html, viewed 09/25/2012)**
6. An apparatus according to claim 5 wherein the means for capturing, compressing and digitizing said	Apple directly infringes this claim through testing and use of the claimed apparatus for transmitting data by and at the direction of its employees. Apple also indirectly infringes this claim by offering to sell and selling components of the claimed apparatus that are found in the Accused Devices to customers and by encouraging and aiding those customers to use the products in a manner that meets each and every step of this claim.

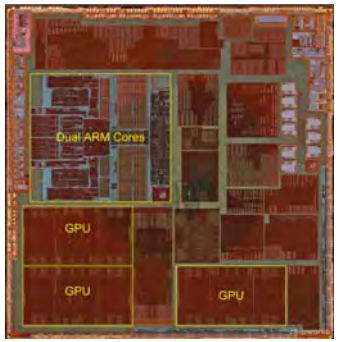
Composite signal includes an audio capture device installed in said remote unit.	The iPhone 5 has an audio capture device with a codec for capturing audio signals. For example, the iPhone 5 has the Apple 338S01077 that is made by Cirrus. (http://www.ifixit.com/Teardown/iPhone-5-Teardown/10525/3, viewed 09/25/2012) According to Apple's website, the iPhone 5 captures audio while recording video: Camera, Photos, and Video 8-megapixel iSight camera Panorama Video recording, HD (1080p) up to 30 frames per second with audio FaceTime HD camera with 1.2MP photos and HD video (720p) up to 30 frames per second Autofocus Tap to focus video or still images Face detection in video or still images LED flash Improved video stabilization Photo and video geotagging **(http://www.apple.com/iphone/specs.html, viewed 09/25/2012)** As described in the iPhone User's Guide, audio is also captured by the Voice Memo feature: At a glance Voice Memos lets you use iPhone as a portable recording device using the built-in microphone, iPhone or Bluetooth headset mic, or supported external microphone. **(iPhoneUser Guide For iOS 6 Software, pg. 109)**

	These voice memos can also be transmitted from a iPhone 5 to a host unit by email, message or Syncing With iTunes.
7. An apparatus according to claim 3 wherein the means for transmitting the composite signal includes: at least one interface installed in conjunction with said remote unit; a cellular telephone connected to each said interface.	Apple directly infringes this claim through testing and use of the claimed apparatus for transmitting data by and at the direction of its employees. Apple also indirectly infringes this claim by offering to sell and selling components of the claimed apparatus that are found in the Accused Devices to customers and by encouraging and aiding those customers to use the products in a manner that meets each and every step of this claim. Apple informs its customers that the iPhone 5's baseband processor allows it to interface with multiple cellular networks. Cellular and Wireless • GSM model A1428*: UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz); GSM/EDGE (850, 900, 1800, 1900 MHz); LTE (Bands 4 and 17) • CDMA model A1429*: CDMA EV-DO Rev. A and Rev. B (800, 1900, 2100 MHz); UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz); GSM/EDGE (850, 900, 1800, 1900 MHz); LTE (Bands 1, 3, 5, 13, 25) • GSM model A1429*: UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz); GSM/EDGE (850, 900, 1800, 1900 MHz); LTE (Bands 1, 3, 5) • 802.11a/b/g/n Wi-Fi (802.11n 2.4GHz and 5GHz) • Bluetooth 4.0 wireless technology (http://www.apple.com/iphone/specs.html, viewed 09/25/2012)
15. An apparatus for transmission of data,	Apple infringes this claim by manufacturing, using, importing, selling and offering for sale the iPhone 5 (the "Accused Device") that comprises an apparatus for transmission of data.[6]

[6] In its original infringement contentions served on June 15, 2012, Samsung alleged that the iPhone (4 and 4S) and iPad (all Generations) were collectively the "Accused Devices" that have been used by Apple and its customers to create systems that infringe claims 15-17 of the '239 patent. Of those, the previously accused devices that now run on the newly released iOS 6.0 (the same operating system that ships with the iPhone 5) operate in substantially the same way as described herein.

comprising:	
a computer including a video capture module to capture and compress video in real time;	The Accused Device comprises a computer that includes a video capture module to capture and compress video in real time. The iPhone 5 has a CMOS Image Sensor that converts an optical image into an electronic analog signal, and then uses an A/D converter that converts the analog signal into a digital signal. For example, the iPhone 5's CMOS Image Sensor is depicted below:  **(iPhone 5's CMOS Sensor, http://www.ifixit.com/Teardown/iPhone-5-Teardown/10525/4, viewed 09/25/2012)** The iPhone 5 has an A6 processor with a graphical processing unit (GPU) for capturing from the iPhone's camera and uses a video encoder for compressing the digital signal into a compressed digital file in real time according to one of three compression standards: H.264, MPEG-4 and Motion JPEG (M-JPEG).[7] For example, the iPhone 5's A6 processor is depicted below:

[7] The previously accused devices have an A4 and A5 processors which operate in substantially the same manner as the iPhone 5's A6 processor.



(A6 Processor, http://www.ifixit.com/Teardown/Apple-A6-Teardown/10528/2, viewed 09/25/2012)

According to Apple's website, the iPhone 5 capture video in HD format at up to 30 frames per second:

Camera, Photos, and Video

- 8-megapixel iSight camera
- Panorama
- Video recording, HD (1080p) up to 30 frames per second with audio
- FaceTime HD camera with 1.2MP photos and HD video (720p) up to 30 frames per second
- Autofocus
- Tap to focus video or still images
- Face detection in video or still images
- LED flash
- Improved video stabilization
- Photo and video geotagging

(http://www.apple.com/iphone/specs.html, viewed 09/25/2012)

Apple's website further describe that the iPhone 5 supports numerous video compression standards:

Video formats supported: H.264 video up to 1080p, 30 frames per second, High Profile level 4.1 with AAC-LC audio up to 160 Kbps, 48kHz, stereo audio in .m4v, .mp4, and .mov file formats; MPEG-4 video up to 2.5 Mbps, 640 by 480 pixels, 30 frames per second, Simple Profile with AAC-LC audio up to 160 Kbps per channel, 48kHz, stereo audio in .m4v, .mp4, and .mov file formats; Motion JPEG (M-JPEG) up to 35 Mbps, 1280 by 720 pixels, 30 frames per second, audio in ulaw, PCM stereo audio in .avi file format

(http://www.apple.com/iphone/specs.html, viewed 09/25/2012)

The iPhone 5's User Guide describes using the iPhone 5's Facetime Camera and app for capturing, digitizing, and compressing at least one composite signal.

(iPhone User Guide for iOS 6 Software, pg. 7)

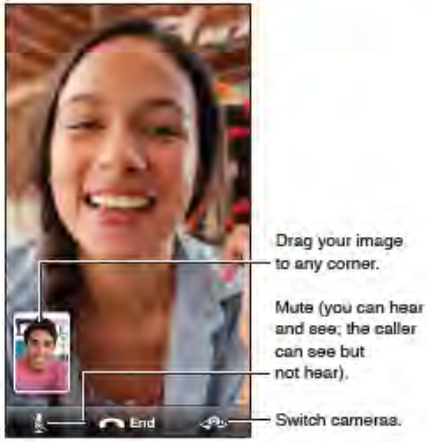
FaceTime

With iPhone 4 or later, you can make a video call to someone with a Mac or other iOS device that supports FaceTime. The FaceTime camera lets you talk face-to-face; switch to the iSight camera on the back to share what you see around you.

Note: On iPhone 3GS or iPhone 4, you need a Wi-Fi connection to the Internet. On iPhone 4S or later, you can also make FaceTime calls over a cellular data connection. Cellular data charges may apply. To turn off FaceTime using cellular data, go to Settings > General > Cellular.

Make a FaceTime call: In Contacts, choose a name, tap FaceTime, then tap the phone number or email address that the person uses for FaceTime.

To call someone who has an iPhone 4 or later, you can start by making a voice call, then tap FaceTime.



Note: With FaceTime, your phone number is displayed even if caller ID is blocked or turned off.

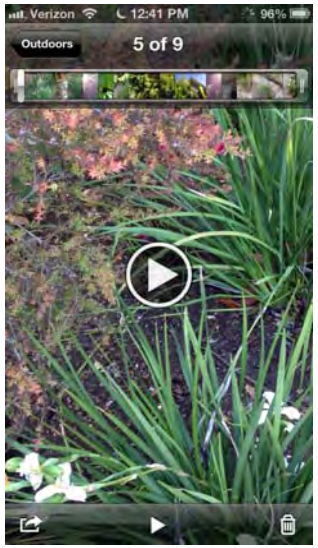
Use Siri or Voice Control: Press and hold the Home button ☐, then say "FaceTime," followed by the name of the person to call.

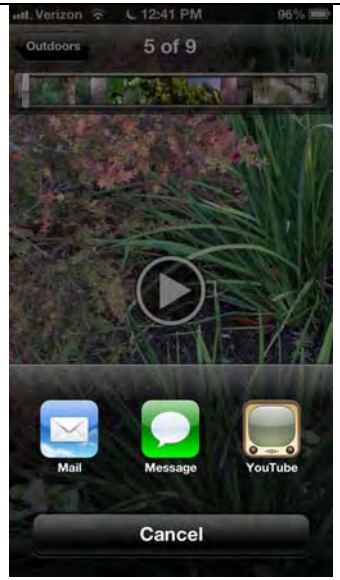
Set FaceTime options: Go to Settings > FaceTime to:

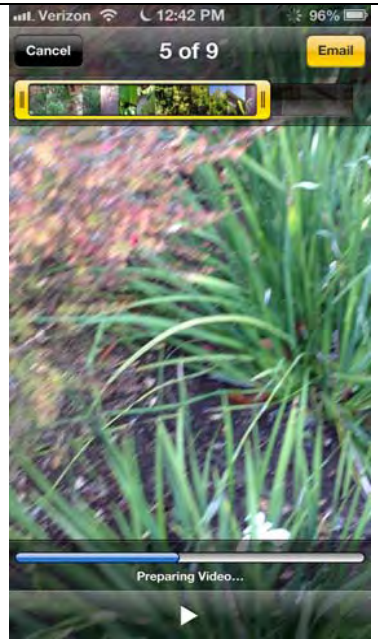
- Turn FaceTime on or off
- Specify your Apple ID or an email address for receiving FaceTime calls

(iPhone User Guide for iOS 6, pg. 47)

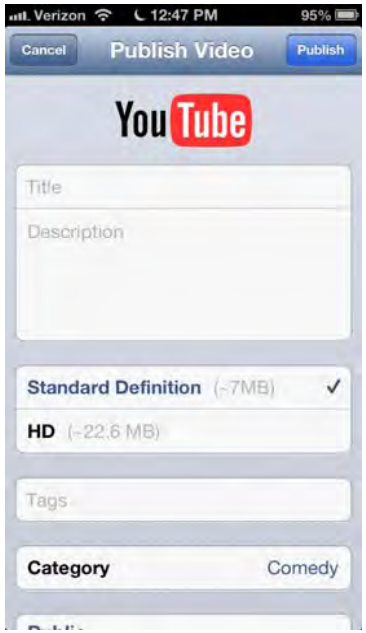
means for transmission of said captured video over a cellular frequency.	The Accused Device allows for the transmission of a captured video over a cellular frequency in a variety of ways. The Photos application that is pre-loaded on the Accused Device provides the user with three ways (email, messages, and sending to YouTube) to share a captured video with another person over a cellular frequency. As explained by Apple: Now playing everywhere. It's premiere time. You can shoot video right in the Messages app and send it through iMessage or as an MMS. Or attach it to an email. Or post it on Facebook or YouTube. With AirPlay and Apple TV, you can show your movies to a large audience on your HDTV.* After a video is captured by an Accused Device, it can be accessed through the Photos application as shown below:

	 When a user clicks on the icon in the bottom left hand corner of the screen, three options for transmitting the video are displayed:

	 Upon selection of the "Email Video" option, the Accused Device displays this screen that depicts the video being processed by the Accused Device for attachment to an email:

	 Upon selection of the "Message" option, the Accused Device display this screen:

	 Upon selection of the "Send to YouTube" option, the Accused Device displays this screen:



On information and belief, the Accused Device has at least one cellular antenna and supporting hardware and software, including a baseband chip, for transmitting the captured video over a cellular frequency. For example, on information and belief, the iPhone 5 includes a baseband processor that supports multiple cellular communication networks. The iPhone 5's specifications indicate the networks that are available to a user:

Cellular and Wireless

- GSM model A1428*: UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz); GSM/EDGE (850, 900, 1800, 1900 MHz); LTE (Bands 4 and 17)
- CDMA model A1429*: CDMA EV-DO Rev. A and Rev. B (800, 1900, 2100 MHz); UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz); GSM/EDGE (850, 900, 1800, 1900 MHz); LTE (Bands 1, 3, 5, 13, 25)
- GSM model A1429*: UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz); GSM/EDGE (850, 900, 1800, 1900 MHz); LTE (Bands 1, 3, 5)
- 802.11a/b/g/n Wi-Fi (802.11n 2.4GHz and 5GHz)
- Bluetooth 4.0 wireless technology

(http://www.apple.com/iphone/specs.html, viewed 09/25/ 2012)

The iPhone User Guide shows the status icons that indicate what networks are available for use by the phone at a given time:

Status icon		What it means
	Cell signal*	Shows whether you're in range of the cellular network and can make and receive calls. The more bars, the stronger the signal. If there's no signal, the bars are replaced with "No service."
	Airplane mode	Shows that airplane mode is on—you cannot use the phone, access the Internet, or use Bluetooth® devices. Non-wireless features are available. See Airplane mode on page 130.
LTE	LTE	Shows that your carrier's LTE network is available, and iPhone can connect to the Internet over that network. (iPhone 5. Not available in all areas.) See Cellular on page 135.
4G	UMTS	Shows that your carrier's 4G UMTS (GSM) network is available, and iPhone can connect to the Internet over that network. (iPhone 4S or later. Not available in all areas.) See Cellular on page 135.
3G	UMTS/EV-DO	Shows that your carrier's 3G UMTS (GSM) or EV-DO (CDMA) network is available, and iPhone can connect to the Internet over that network. See Cellular on page 135.
E	EDGE	Shows that your carrier's EDGE (GSM) network is available, and iPhone can connect to the Internet over that network. See Cellular on page 135.

(iPhone User Guide for iOS 6 Software, pg. 10)

Facetime also allows users to make a video call over cellular frequencies:

FaceTime

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Note: On iPhone 3GS or iPhone 4, you need a Wi-Fi connection to the Internet. On iPhone 4S or later, you can also make FaceTime calls over a cellular data connection. Cellular data charges may apply. To turn off FaceTime using cellular data, go to Settings > General > Cellular.

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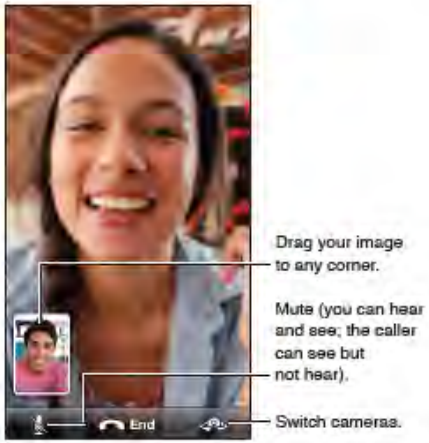
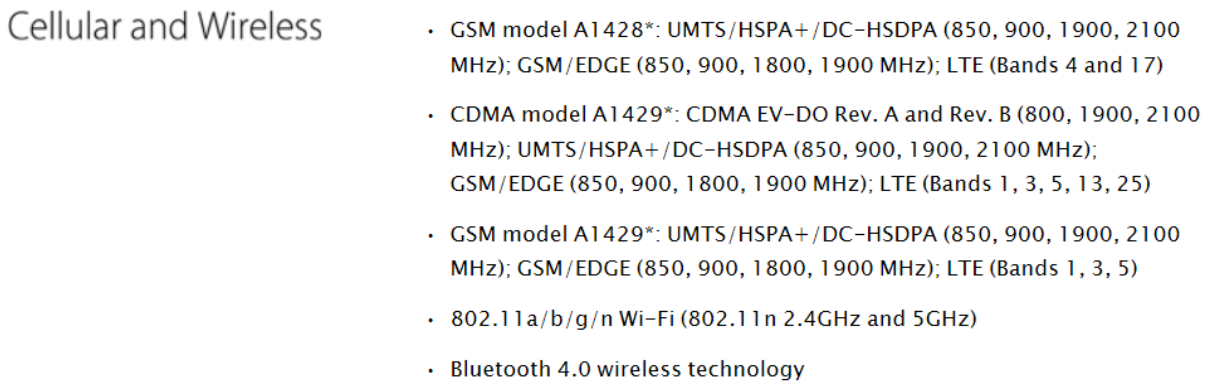


Note: With FaceTime, your phone number is displayed even if caller ID is blocked or turned off.

Use Siri or Voice Control: Press and hold the Home button ☐, then say "FaceTime," followed by the name of the person to call.

Set FaceTime options: Go to Settings > FaceTime to:

- Turn FaceTime on or off
- Specify your Apple ID or an email address for receiving FaceTime calls

	(iPhone User Guide for iOS 6, pg. 47)
16. The apparatus of claim 15 wherein the means for transmission of said captured video over a cellular frequency includes;	Apple infringes this claim by selling the Accused Device that each comprises an apparatus for transmission of captured video over a cellular frequency.
at least two interfaces operating in conjunction with said computer;	On information and belief, the Accused Device has at least two interfaces for transmission of captured video over a cellular frequency. The Accused Device has a baseband processor that supports multiple cellular communication networks.  Cellular and Wireless • GSM model A1428*: UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz); GSM/EDGE (850, 900, 1800, 1900 MHz); LTE (Bands 4 and 17) • CDMA model A1429*: CDMA EV-DO Rev. A and Rev. B (800, 1900, 2100 MHz); UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz); GSM/EDGE (850, 900, 1800, 1900 MHz); LTE (Bands 1, 3, 5, 13, 25) • GSM model A1429*: UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz); GSM/EDGE (850, 900, 1800, 1900 MHz); LTE (Bands 1, 3, 5) • 802.11a/b/g/n Wi-Fi (802.11n 2.4GHz and 5GHz) • Bluetooth 4.0 wireless technology **(http://www.apple.com/iphone/specs.html, viewed 09/25/ 2012)**
a cellular telephone connected to each said interface.	The Accused Device is a cell phone that is connected to each interface. For example, the iPhone 5 is a world phone that is both a CDMA cellular telephone connected to a CDMA interface and a GSM telephone connected to a GSM interface.
17. The apparatus of claim 16 further including means for splitting the captured	On information and belief, the Accused Device has software that splits the captured video into pieces for transmission through the multiple interfaces described above with respect to claim 16.

video into pieces for transmission through said interfaces.	