

LAT QPSK EIRP POWER FOR LTE BAND 25 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D								
Company:		Apple						
Project #:		14U17673						
Date:		06/07/14						
Test Engineer:		M. Hua						
Configuration:		EUT Only						
Mode:		LTE Band 25 QPSK 10MHz BW						
Test Equipment:								
Receiving: Horn T344, and Chamber D SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.855	19.7	V	0.98	7.88	26.59	33.0	-6.4	
1.855	19.3	H	0.98	7.88	26.16	33.0	-6.8	
Mid Ch								
1.883	19.5	V	0.98	7.86	26.42	33.0	-6.6	
1.883	19.6	H	0.98	7.86	26.44	33.0	-6.6	
High Ch								
1.910	18.3	V	0.98	7.84	25.13	33.0	-7.9	
1.910	19.6	H	0.98	7.84	26.42	33.0	-6.6	
Rev. 10.24.13								

LAT 16QAM EIRP POWER FOR LTE BAND 25 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D								
Company:		Apple						
Project #:		14U17673						
Date:		06/07/14						
Test Engineer:		M. Hua						
Configuration:		EUT Only						
Mode:		LTE Band 25 16QAM 10MHz BW						
Test Equipment:								
Receiving: Horn T344, and Chamber D SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.855	18.7	V	0.98	7.88	25.59	33.0	-7.4	
1.855	17.9	H	0.98	7.88	24.79	33.0	-8.2	
Mid Ch								
1.883	18.5	V	0.98	7.86	25.42	33.0	-7.6	
1.883	18.8	H	0.98	7.86	25.64	33.0	-7.4	
High Ch								
1.910	17.3	V	0.98	7.84	24.14	33.0	-8.9	
1.910	18.7	H	0.98	7.84	25.52	33.0	-7.5	
Rev. 10.24.13								

LAT QPSK EIRP POWER FOR LTE BAND 25 (15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D								
Company:		Apple						
Project #:		14U17673						
Date:		06/07/14						
Test Engineer:		M. Hua						
Configuration:		EUT Only						
Mode:		LTE Band 25 QPSK 15MHz BW						
Test Equipment:								
Receiving: Horn T344, and Chamber D SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.858	19.7	V	0.98	7.88	26.59	33.0	-6.4	
1.858	18.2	H	0.98	7.88	25.06	33.0	-7.9	
Mid Ch								
1.883	19.1	V	0.98	7.86	26.02	33.0	-7.0	
1.883	19.1	H	0.98	7.86	25.94	33.0	-7.1	
High Ch								
1.908	17.5	V	0.98	7.84	24.40	33.0	-8.6	
1.908	19.6	H	0.98	7.84	26.42	33.0	-6.6	
Rev. 10.24.13								

LAT 16QAM EIRP POWER FOR LTE BAND 25 (15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D								
Company:		Apple						
Project #:		14U17673						
Date:		06/07/14						
Test Engineer:		M. Hua						
Configuration:		EUT Only						
Mode:		LTE Band 25 16QAM 15MHz BW						
Test Equipment:								
Receiving: Horn T344, and Chamber D SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.858	18.9	V	0.98	7.88	25.84	33.0	-7.2	
1.858	17.3	H	0.98	7.88	24.21	33.0	-8.8	
Mid Ch								
1.883	18.4	V	0.98	7.86	25.32	33.0	-7.7	
1.883	18.3	H	0.98	7.86	25.14	33.0	-7.9	
High Ch								
1.908	16.6	V	0.98	7.84	23.45	33.0	-9.6	
1.908	18.5	H	0.98	7.84	25.36	33.0	-7.6	
Rev. 10.24.13								

LAT QPSK EIRP POWER FOR LTE BAND 25 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D								
Company:		Apple						
Project #:		14U17673						
Date:		06/07/14						
Test Engineer:		M. Hua						
Configuration:		EUT Only						
Mode:		LTE Band 25 QPSK 20MHz BW						
Test Equipment:								
Receiving: Horn T344, and Chamber D SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.860	19.6	V	0.98	7.88	26.49	33.0	-6.5	
1.860	18.3	H	0.98	7.88	25.16	33.0	-7.8	
Mid Ch								
1.883	18.8	V	0.98	7.86	25.70	33.0	-7.3	
1.883	19.1	H	0.98	7.86	26.00	33.0	-7.0	
High Ch								
1.905	18.6	V	0.98	7.84	25.47	33.0	-7.5	
1.905	19.7	H	0.98	7.84	26.59	33.0	-6.4	
Rev. 10.24.13								

LAT 16QAM EIRP POWER FOR LTE BAND 25 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D								
Company:		Apple						
Project #:		14U17673						
Date:		06/07/14						
Test Engineer:		M. Hua						
Configuration:		EUT Only						
Mode:		LTE Band 25 16QAM 20MHz BW						
Test Equipment:								
Receiving: Horn T344, and Chamber D SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.860	18.9	V	0.98	7.88	25.77	33.0	-7.2	
1.860	17.6	H	0.98	7.88	24.54	33.0	-8.5	
Mid Ch								
1.883	17.9	V	0.98	7.86	24.81	33.0	-8.2	
1.883	18.2	H	0.98	7.86	25.04	33.0	-8.0	
High Ch								
1.905	17.8	V	0.98	7.84	24.69	33.0	-8.3	
1.905	18.7	H	0.98	7.84	25.59	33.0	-7.4	
Rev. 10.24.13								

UAT QPSK EIRP POWER FOR LTE BAND 25 (1.4MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F								
Company:		Apple						
Project #:		14U17673						
Date:		06/09/14						
Test Engineer:		R.Zheng						
Configuration:		EUT only						
Mode:		LTE Band 25 QPSK 1.4MHz BW						
Test Equipment:								
Receiving: Horn T120 and Chamber F SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.851	12.0	V	0.98	8.61	19.67	33.0	-13.3	
1.851	13.3	H	0.98	8.81	21.12	33.0	-11.9	
Mid Ch								
1.883	12.0	V	0.98	8.53	19.55	33.0	-13.5	
1.883	13.9	H	0.98	8.68	21.57	33.0	-11.4	
High Ch								
1.914	12.2	V	0.98	8.45	19.67	33.0	-13.3	
1.914	13.9	H	0.98	8.55	21.47	33.0	-11.5	
Rev. 10.24.13								

UAT 16QAM EIRP POWER FOR LTE BAND 25 (1.4MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F									
Company:		Apple							
Project #:		14U17673							
Date:		06/09/14							
Test Engineer:		R.Zheng							
Configuration:		EUT only							
Mode:		LTE Band 25 16QAM 1.4MHz BW							
Test Equipment:									
Receiving: Horn T120 and Chamber F SMA Cables									
Substitution: Horn T60 Substitution, and 8ft SMA Cable									
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes	
Low Ch									
1.851	11.1	V	0.98	8.61	18.71	33.0	-14.3		
1.851	12.3	H	0.98	8.81	20.11	33.0	-12.9		
Mid Ch									
1.883	11.1	V	0.98	8.53	18.64	33.0	-14.4		
1.883	13.1	H	0.98	8.68	20.78	33.0	-12.2		
High Ch									
1.914	11.3	V	0.98	8.45	18.79	33.0	-14.2		
1.914	13.0	H	0.98	8.55	20.57	33.0	-12.4		
Rev. 10.24.13									

UAT QPSK EIRP POWER FOR LTE BAND 25 (3.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F								
Company:		Apple						
Project #:		14U17673						
Date:		06/09/14						
Test Engineer:		R.Zheng						
Configuration:		EUT only						
Mode:		LTE Band 25 QPSK 3MHz BW						
Test Equipment:								
Receiving: Horn T120 and Chamber F SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.852	12.2	V	0.98	8.61	19.83	33.0	-13.2	
1.852	13.4	H	0.98	8.81	21.25	33.0	-11.7	
Mid Ch								
1.883	12.1	V	0.98	8.53	19.65	33.0	-13.4	
1.883	13.8	H	0.98	8.68	21.52	33.0	-11.5	
High Ch								
1.914	12.1	V	0.98	8.45	19.57	33.0	-13.4	
1.914	13.6	H	0.98	8.55	21.17	33.0	-11.8	
Rev. 10.24.13								

UAT 16QAM EIRP POWER FOR LTE BAND 25 (3.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F									
Company:		Apple							
Project #:		14U17673							
Date:		06/09/14							
Test Engineer:		R.Zheng							
Configuration:		EUT only							
Mode:		LTE Band 25 16QAM 3MHz BW							
Test Equipment:									
Receiving: Horn T120 and Chamber F SMA Cables									
Substitution: Horn T60 Substitution, and 8ft SMA Cable									
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes	
Low Ch									
1.852	11.3	V	0.98	8.61	18.92	33.0	-14.1		
1.852	12.5	H	0.98	8.81	20.30	33.0	-12.7		
Mid Ch									
1.883	11.2	V	0.98	8.53	18.79	33.0	-14.2		
1.883	12.9	H	0.98	8.68	20.56	33.0	-12.4		
High Ch									
1.914	11.2	V	0.98	8.45	18.68	33.0	-14.3		
1.914	12.7	H	0.98	8.55	20.27	33.0	-12.7		
Rev. 10.24.13									

UAT QPSK EIRP POWER FOR LTE BAND 25 (5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F									
Company:		Apple							
Project #:		14U17673							
Date:		06/09/14							
Test Engineer:		R.Zheng							
Configuration:		EUT only							
Mode:		LTE Band 25 QPSK 5MHz BW							
Test Equipment:									
Receiving: Horn T120 and Chamber F SMA Cables									
Substitution: Horn T60 Substitution, and 8ft SMA Cable									
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes	
Low Ch									
1.853	11.8	V	0.98	8.61	19.43	33.0	-13.6		
1.853	12.1	H	0.98	8.81	19.88	33.0	-13.1		
Mid Ch									
1.883	12.0	V	0.98	8.53	19.55	33.0	-13.5		
1.883	13.0	H	0.98	8.68	20.67	33.0	-12.3		
High Ch									
1.913	12.0	V	0.98	8.45	19.47	33.0	-13.5		
1.913	12.8	H	0.98	8.55	20.40	33.0	-12.6		
Rev. 10.24.13									

UAT 16QAM EIRP POWER FOR LTE BAND 25 (5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F								
Company:		Apple						
Project #:		14U17673						
Date:		06/09/14						
Test Engineer:		R.Zheng						
Configuration:		EUT only						
Mode:		LTE Band 25 16QAM 5MHz BW						
Test Equipment:								
Receiving: Horn T120 and Chamber F SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.853	10.8	V	0.98	8.61	18.42	33.0	-14.6	
1.853	11.8	H	0.98	8.81	19.58	33.0	-13.4	
Mid Ch								
1.883	11.1	V	0.98	8.53	18.60	33.0	-14.4	
1.883	12.1	H	0.98	8.68	19.77	33.0	-13.2	
High Ch								
1.913	11.1	V	0.98	8.45	18.58	33.0	-14.4	
1.913	12.1	H	0.98	8.55	19.64	33.0	-13.4	
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UAT QPSK EIRP POWER FOR LTE BAND 25 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F								
Company:		Apple						
Project #:		14U17673						
Date:		06/09/14						
Test Engineer:		R.Zheng						
Configuration:		EUT only						
Mode:		LTE Band 25 QPSK 10MHz BW						
Test Equipment:								
Receiving: Horn T120 and Chamber F SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.855	12.1	V	0.98	8.61	19.73	33.0	-13.3	
1.855	12.4	H	0.98	8.81	20.21	33.0	-12.8	
Mid Ch								
1.883	12.4	V	0.98	8.53	19.95	33.0	-13.1	
1.883	13.0	H	0.98	8.68	20.67	33.0	-12.3	
High Ch								
1.910	12.3	V	0.98	8.45	19.77	33.0	-13.2	
1.910	13.9	H	0.98	8.55	21.46	33.0	-11.5	
Rev. 10.24.13								

UAT 16QAM EIRP POWER FOR LTE BAND 25 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F								
Company:		Apple						
Project #:		14U17673						
Date:		06/09/14						
Test Engineer:		R.Zheng						
Configuration:		EUT only						
Mode:		LTE Band 25 16QAM 10MHz BW						
Test Equipment:								
Receiving: Horn T120 and Chamber F SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.855	11.2	V	0.98	8.61	18.82	33.0	-14.2	
1.855	11.5	H	0.98	8.81	19.31	33.0	-13.7	
Mid Ch								
1.883	11.4	V	0.98	8.53	18.97	33.0	-14.0	
1.883	12.1	H	0.98	8.68	19.77	33.0	-13.2	
High Ch								
1.910	11.4	V	0.98	8.45	18.82	33.0	-14.2	
1.910	12.9	H	0.98	8.55	20.49	33.0	-12.5	
Rev. 10.24.13								

UAT QPSK EIRP POWER FOR LTE BAND 25 (15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F								
Company:		Apple						
Project #:		14U17673						
Date:		06/09/14						
Test Engineer:		R.Zheng						
Configuration:		EUT only						
Mode:		LTE Band 25 QPSK 15MHz BW						
Test Equipment:								
Receiving: Horn T120 and Chamber F SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.858	11.7	V	0.98	8.61	19.33	33.0	-13.7	
1.858	12.0	H	0.98	8.81	19.81	33.0	-13.2	
Mid Ch								
1.883	11.6	V	0.98	8.53	19.15	33.0	-13.9	
1.883	12.9	H	0.98	8.68	20.57	33.0	-12.4	
High Ch								
1.908	12.4	V	0.98	8.45	19.87	33.0	-13.1	
1.908	13.1	H	0.98	8.55	20.67	33.0	-12.3	
Rev. 10.24.13								

UAT 16QAM EIRP POWER FOR LTE BAND 25 (15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F								
Company:		Apple						
Project #:		14U17673						
Date:		06/09/14						
Test Engineer:		R.Zheng						
Configuration:		EUT only						
Mode:		LTE Band 25 16QAM 15MHz BW						
Test Equipment:								
Receiving: Horn T120 and Chamber F SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.858	10.9	V	0.98	8.61	18.49	33.0	-14.5	
1.858	10.7	H	0.98	8.81	18.51	33.0	-14.5	
Mid Ch								
1.883	10.7	V	0.98	8.53	18.20	33.0	-14.8	
1.883	11.9	H	0.98	8.68	19.57	33.0	-13.4	
High Ch								
1.908	11.4	V	0.98	8.45	18.83	33.0	-14.2	
1.908	12.3	H	0.98	8.55	19.86	33.0	-13.1	
Rev. 10.24.13								

UAT QPSK EIRP POWER FOR LTE BAND 25 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F								
Company:		Apple						
Project #:		14U17673						
Date:		06/09/14						
Test Engineer:		R.Zheng						
Configuration:		EUT only						
Mode:		LTE Band 25 QPSK 20MHz BW						
Test Equipment:								
Receiving: Horn T120 and Chamber F SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.860	11.6	V	0.98	8.61	19.23	33.0	-13.8	
1.860	12.8	H	0.98	8.81	20.60	33.0	-12.4	
Mid Ch								
1.883	12.1	V	0.98	8.53	19.65	33.0	-13.4	
1.883	14.1	H	0.98	8.68	21.77	33.0	-11.2	
High Ch								
1.905	11.7	V	0.98	8.45	19.17	33.0	-13.8	
1.905	13.1	H	0.98	8.55	20.72	33.0	-12.3	
Rev. 10.24.13								

UAT 16QAM EIRP POWER FOR LTE BAND 25 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F								
Company:		Apple						
Project #:		14U17673						
Date:		06/09/14						
Test Engineer:		R.Zheng						
Configuration:		EUT only						
Mode:		LTE Band 25 16QAM 20MHz BW						
Test Equipment:								
Receiving: Horn T120 and Chamber F SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1.860	10.7	V	0.98	8.61	18.30	33.0	-14.7	
1.860	11.9	H	0.98	8.81	19.73	33.0	-13.3	
Mid Ch								
1.883	11.1	V	0.98	8.53	18.60	33.0	-14.4	
1.883	13.0	H	0.98	8.68	20.69	33.0	-12.3	
High Ch								
1.905	10.8	V	0.98	8.45	18.29	33.0	-14.7	
1.905	12.1	H	0.98	8.55	19.71	33.0	-13.3	
Rev. 10.24.13								

9.1.7. LTE BAND 26

LAT QPSK EIRP POWER FOR LTE BAND 26 (3.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F										
Company:		Apple								
Project #:		14U17673								
Date:		06/10/14								
Test Engineer:		R.ZHENG								
Configuration:		EUT only								
Mode:		LTE Band 26 QPSK 3MHz BW								
Test Equipment:										
Receiving: Sunol T122, and Chamber F Cable										
Substitution: Dipole S/N: 00022117, and 8ft SMA Cable										
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Low Ch										
820.30	11.92	V	0.62	0.0	11.30	13.45	38.45	40.60	-27.2	
820.30	18.77	H	0.62	0.0	18.15	20.30	38.45	40.60	-20.3	
Mid Ch										
821.30	11.92	V	0.62	0.0	11.30	13.45	38.45	40.60	-27.2	
821.30	18.80	H	0.62	0.0	18.18	20.33	38.45	40.60	-20.3	
High Ch										
822.30	12.34	V	0.62	0.0	11.72	13.87	38.45	40.60	-26.7	
822.30	19.08	H	0.62	0.0	18.46	20.61	38.45	40.60	-20.0	
Rev. 10.24.13										

LAT 16QAM EIRP POWER FOR LTE BAND 26 (3.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F										
Company:		Apple								
Project #:		14U17673								
Date:		06/10/14								
Test Engineer:		R.ZHENG								
Configuration:		EUT only								
Mode:		LTE Band 26 16QAM 3MHz BW								
Test Equipment:										
Receiving: Sunol T122, and Chamber F Cable										
Substitution: Dipole S/N: 00022117, and 8ft SMA Cable										
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Low Ch										
820.30	10.98	V	0.62	0.0	10.36	12.51	38.45	40.60	-28.1	
820.30	17.84	H	0.62	0.0	17.22	19.37	38.45	40.60	-21.2	
Mid Ch										
821.30	11.02	V	0.62	0.0	10.40	12.55	38.45	40.60	-28.1	
821.30	17.79	H	0.62	0.0	17.17	19.32	38.45	40.60	-21.3	
High Ch										
822.30	11.37	V	0.62	0.0	10.75	12.90	38.45	40.60	-27.7	
822.30	18.15	H	0.62	0.0	17.53	19.68	38.45	40.60	-20.9	
Rev. 10.24.13										

LAT QPSK EIRP POWER FOR LTE BAND 26 (5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F										
Company:		Apple								
Project #:		14U17673								
Date:		06/09/14								
Test Engineer:		R.Zheng								
Configuration:		EUT only								
Mode:		LTE Band 26 QPSK 5MHz BW								
Test Equipment:										
Receiving: Sunol T122, and Chamber F Cable										
Substitution: Dipole S/N: 00022117, and 8ft SMA Cable										
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Mid Ch										
821.30	12.76	V	0.62	0.0	12.14	14.29	38.45	40.60	-26.3	
821.30	19.00	H	0.62	0.0	18.38	20.53	38.45	40.60	-20.1	
Rev. 10.24.13										

LAT 16QAM EIRP POWER FOR LTE BAND 26 (5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement										
UL Fremont Radiated Chamber F										
Company:		Apple								
Project #:		14U17673								
Date:		06/09/14								
Test Engineer:		R.Zheng								
Configuration:		EUT only								
Mode:		LTE Band 26 16QAM 5MHz BW								
Test Equipment:										
Receiving: Sunol T122, and Chamber F Cable										
Substitution: Dipole S/N: 00022117, and 8ft SMA Cable										
f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	EIRP	ERP Limit	EIRP Limit	Margin	Notes
GHz	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)	
Mid Ch										
821.30	11.76	V	0.62	0.0	11.14	13.29	38.45	40.60	-27.3	
821.30	18.08	H	0.62	0.0	17.46	19.61	38.45	40.60	-21.0	
Rev. 10.24.13										

LAT QPSK EIRP POWER FOR LTE BAND 26 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber E																																																						
<p>Project #: 14U17673 Date: 6/20/2014 Test Engineer: Macie Configuration: EUT Only Mode: LTE Band 26 QPSK 10MHz BW</p> <p>Test Equipment: Receiving: Sunol T408, and Chamber E Cable Substitution: Dipole S/N: 00022117, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>f GHz</th> <th>SG reading (dBm)</th> <th>Ant. Pol. (H/V)</th> <th>Cable Loss (dB)</th> <th>Antenna Gain (dBi)</th> <th>ERP (dBm)</th> <th>EIRP (dBm)</th> <th>ERP Limit (dBm)</th> <th>EIRP Limit (dBm)</th> <th>Margin (dB)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>Mid Ch</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>819.00</td> <td>12.65</td> <td>V</td> <td>0.62</td> <td>0.0</td> <td>12.03</td> <td>14.18</td> <td>38.45</td> <td>40.60</td> <td>-26.4</td> <td></td> </tr> <tr> <td>819.00</td> <td>19.04</td> <td>H</td> <td>0.62</td> <td>0.0</td> <td>18.42</td> <td>20.57</td> <td>38.45</td> <td>40.60</td> <td>-20.0</td> <td></td> </tr> </tbody> </table> <p>Rev. 10.24.13</p>											f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes	Mid Ch											819.00	12.65	V	0.62	0.0	12.03	14.18	38.45	40.60	-26.4		819.00	19.04	H	0.62	0.0	18.42	20.57	38.45	40.60	-20.0	
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes																																												
Mid Ch																																																						
819.00	12.65	V	0.62	0.0	12.03	14.18	38.45	40.60	-26.4																																													
819.00	19.04	H	0.62	0.0	18.42	20.57	38.45	40.60	-20.0																																													

LAT 16QAM EIRP POWER FOR LTE BAND 26 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber E										
Project #:		14U17673								
Date:		6/20/2014								
Test Engineer:		Macie								
Configuration:		EUT Only								
Mode:		LTE Band 26 16QAM 10MHz BW								
Test Equipment:										
Receiving: Sunol T408, and Chamber E Cable										
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)										
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Low Ch										
819.00	11.95	V	0.62	0.0	11.33	13.48	38.45	40.60	-27.1	
819.00	17.78	H	0.62	0.0	17.16	19.31	38.45	40.60	-21.3	
Rev. 10.24.13										

UAT QPSK POWER FOR LTE BAND 26 (3.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D										
Company:		Apple								
Project #:		14U17673								
Date:		06/07/14								
Test Engineer:		R.Zheng								
Configuration:		EUT Only								
Mode:		LTE Band 26 QPSK 3MHz BW								
Test Equipment:										
Receiving: Sunoi T407, and Chamber D Cable										
Substitution: Dipole S/N: 00022117, and 8ft SMA Cable										
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Low Ch										
820.30	11.23	V	0.62	0.0	10.61	12.76	38.45	40.60	-27.8	
820.30	17.06	H	0.62	0.0	16.44	18.59	38.45	40.60	-22.0	
Mid Ch										
821.30	10.25	V	0.62	0.0	9.63	11.78	38.45	40.60	-28.8	
821.30	16.82	H	0.62	0.0	16.20	18.35	38.45	40.60	-22.3	
High Ch										
822.30	10.41	V	0.62	0.0	9.79	11.94	38.45	40.60	-28.7	
822.30	16.89	H	0.62	0.0	16.27	18.42	38.45	40.60	-22.2	
Rev. 10.24.13										

UAT 16QAMPOWER FOR LTE BAND 26 (3.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D										
Company:		Apple								
Project #:		14U17673								
Date:		06/07/14								
Test Engineer:		R.Zheng								
Configuration:		EUT Only								
Mode:		LTE Band 26 16QAM 3MHz BW								
Test Equipment:										
Receiving: Sunoi T407, and Chamber D Cable										
Substitution: Dipole S/N: 00022117, and 8ft SMA Cable										
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Low Ch										
820.30	9.83	V	0.62	0.0	9.21	11.36	38.45	40.60	-29.2	
820.30	16.09	H	0.62	0.0	15.47	17.62	38.45	40.60	-23.0	
Mid Ch										
821.30	9.55	V	0.62	0.0	8.93	11.08	38.45	40.60	-29.5	
821.30	15.85	H	0.62	0.0	15.23	17.38	38.45	40.60	-23.2	
High Ch										
822.30	9.44	V	0.62	0.0	8.82	10.97	38.45	40.60	-29.6	
822.30	16.00	H	0.62	0.0	15.38	17.53	38.45	40.60	-23.1	
Rev. 10.24.13										

UAT QPSK EIRP POWER FOR LTE BAND 26 (5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D										
<p>Company: Apple Project #: 14U17673 Date: 06/07/14 Test Engineer: R.Zheng Configuration: EUT Only Mode: LTE Band 26 QPSK 5MHz BW</p> <p><u>Test Equipment:</u> Receiving: Sunol T407, and Chamber D Cable Substitution: Dipole S/N: 00022117, and 8ft SMA Cable</p>										
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Mid Ch										
821.30	14.32	V	0.62	0.0	13.70	15.85	38.45	40.60	-24.8	
821.30	16.70	H	0.62	0.0	16.08	18.23	38.45	40.60	-22.4	
Rev. 10.24.13										

UAT 16QAM EIRP POWER FOR LTE BAND 26 (5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D											
Company:		Apple									
Project #:		14U17673									
Date:		06/07/14									
Test Engineer:		R.Zheng									
Configuration:		EUT Only									
Mode:		LTE Band 26 16QAM 5MHz BW									
Test Equipment:											
Receiving: Sunol T407, and Chamber D Cable											
Substitution: Dipole S/N: 00022117, and 8ft SMA Cable											
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes	
Mid Ch											
821.30	13.42	V	0.62	0.0	12.80	14.95	38.45	40.60	-25.7		
821.30	15.78	H	0.62	0.0	15.16	17.31	38.45	40.60	-23.3		
Rev. 10.24.13											

UAT QPSK EIRP POWER FOR LTE BAND 26 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber E										
Project #:		14U17673								
Date:		6/20/2014								
Test Engineer:		Macie								
Configuration:		EUT Only								
Mode:		LTE Band 26 QPSK 10MHz BW								
Test Equipment:										
Receiving: Sunol T408, and Chamber E Cable										
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)										
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Mid Ch										
819.00	10.52	V	0.62	0.0	9.90	12.05	38.45	40.60	-28.6	
819.00	16.92	H	0.62	0.0	16.30	18.45	38.45	40.60	-22.2	
Rev. 10.24.13										

UAT 16QAM EIRP POWER FOR LTE BAND 26 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber E										
Project #:		14U17673								
Date:		6/20/2014								
Test Engineer:		Macie								
Configuration:		EUT Only								
Mode:		LTE Band 26 16QAM 10MHz BW								
Test Equipment:										
Receiving: Sunol T408, and Chamber E Cable										
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)										
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	ERP Limit (dBm)	EIRP Limit (dBm)	Margin (dB)	Notes
Low Ch										
819.00	9.81	V	0.62	0.0	9.19	11.34	38.45	40.60	-29.3	
819.00	16.01	H	0.62	0.0	15.39	17.54	38.45	40.60	-23.1	
Rev. 10.24.13										

9.1.8. LTE BAND 41

LAT QPSK EIRP POWER FOR LTE BAND 41 (5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D								
Company:		Apple						
Project #:		14U17673						
Date:		06/09/14						
Test Engineer:		M. Hua						
Configuration:		EUT Only						
Mode:		LTE Band 41 QPSK 5MHz BW						
Test Equipment:								
Receiving: Horn T344, and Chamber D SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2.499	17.2	V	1.15	9.47	25.50	33.0	-7.5	
2.499	23.1	H	1.15	9.47	31.44	33.0	-1.6	
Mid Ch								
2.593	20.1	V	1.16	9.51	28.48	33.0	-4.5	
2.593	22.7	H	1.16	9.51	31.01	33.0	-2.0	
High Ch								
2.688	18.8	V	1.17	9.54	27.18	33.0	-5.8	
2.688	20.7	H	1.17	9.54	29.07	33.0	-3.9	
Rev. 10.24.13								

LAT 16QAM EIRP POWER FOR LTE BAND 41 (5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D								
Company:		Apple						
Project #:		14U17673						
Date:		06/09/14						
Test Engineer:		M. Hua						
Configuration:		EUT Only						
Mode:		LTE Band 41 16QAM 5MHz BW						
Test Equipment:								
Receiving: Horn T344, and Chamber D SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2.499	16.3	V	1.15	9.47	24.60	33.0	-8.4	
2.499	22.2	H	1.15	9.47	30.54	33.0	-2.5	
Mid Ch								
2.593	19.2	V	1.16	9.51	27.58	33.0	-5.4	
2.593	21.8	H	1.16	9.51	30.11	33.0	-2.9	
High Ch								
2.688	17.9	V	1.17	9.54	26.28	33.0	-6.7	
2.688	19.8	H	1.17	9.54	28.17	33.0	-4.8	
Rev. 10.24.13								

LAT QPSK EIRP POWER FOR LTE BAND 41 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D								
Company:		Apple						
Project #:		14U17673						
Date:		06/09/14						
Test Engineer:		M. Hua						
Configuration:		EUT Only						
Mode:		LTE Band 41 QPSK 10MHz BW						
Test Equipment:								
Receiving: Horn T344, and Chamber D SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2.501	15.8	V	1.15	9.47	24.08	33.0	-8.9	
2.501	22.7	H	1.15	9.47	31.01	33.0	-2.0	
Mid Ch								
2.593	16.1	V	1.16	9.51	24.48	33.0	-8.5	
2.593	22.4	H	1.16	9.51	30.79	33.0	-2.2	
High Ch								
2.685	14.8	V	1.17	9.54	23.18	33.0	-9.8	
2.685	20.5	H	1.17	9.54	28.87	33.0	-4.1	
Rev. 10.24.13								

LAT 16QAM EIRP POWER FOR LTE BAND 41 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D								
Company:		Apple						
Project #:		14U17673						
Date:		06/09/14						
Test Engineer:		M. Hua						
Configuration:		EUT Only						
Mode:		LTE Band 41 16QAM 10MHz BW						
Test Equipment:								
Receiving: Horn T344, and Chamber D SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2.501	14.9	V	1.15	9.47	23.18	33.0	-9.8	
2.501	21.8	H	1.15	9.47	30.11	33.0	-2.9	
Mid Ch								
2.593	15.2	V	1.16	9.51	23.58	33.0	-9.4	
2.593	21.5	H	1.16	9.51	29.89	33.0	-3.1	
High Ch								
2.685	13.9	V	1.17	9.54	22.28	33.0	-10.7	
2.685	19.5	H	1.17	9.54	27.87	33.0	-5.1	
Rev. 10.24.13								

LAT QPSK EIRP POWER FOR LTE BAND 41 (15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D								
Company:		Apple						
Project #:		14U17673						
Date:		06/09/14						
Test Engineer:		M. Hua						
Configuration:		EUT Only						
Mode:		LTE Band 41 QPSK 15MHz BW						
Test Equipment:								
Receiving: Horn T344, and Chamber D SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2.504	16.3	V	1.15	9.47	24.65	33.0	-8.4	
2.504	22.8	H	1.15	9.47	31.17	33.0	-1.8	
Mid Ch								
2.593	16.1	V	1.16	9.51	24.48	33.0	-8.5	
2.593	22.4	H	1.16	9.51	30.70	33.0	-2.3	
High Ch								
2.683	15.8	V	1.17	9.54	24.18	33.0	-8.8	
2.683	20.4	H	1.17	9.54	28.77	33.0	-4.2	
Rev. 10.24.13								

LAT 16QAM EIRP POWER FOR LTE BAND 41 (15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D								
Company:		Apple						
Project #:		14U17673						
Date:		06/09/14						
Test Engineer:		M. Hua						
Configuration:		EUT Only						
Mode:		LTE Band 41 16QAM 15MHz BW						
Test Equipment:								
Receiving: Horn T344, and Chamber D SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2.504	15.3	V	1.15	9.47	23.65	33.0	-9.4	
2.504	21.8	H	1.15	9.47	30.17	33.0	-2.8	
Mid Ch								
2.593	15.1	V	1.16	9.51	23.48	33.0	-9.5	
2.593	21.4	H	1.16	9.51	29.70	33.0	-3.3	
High Ch								
2.683	14.8	V	1.17	9.54	23.18	33.0	-9.8	
2.683	19.4	H	1.17	9.54	27.77	33.0	-5.2	
Rev. 10.24.13								

LAT QPSK EIRP POWER FOR LTE BAND 41 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D								
Company:		Apple						
Project #:		14U17673						
Date:		06/09/14						
Test Engineer:		M. Hua						
Configuration:		EUT Only						
Mode:		LTE Band 41 QPSK 20MHz BW						
Test Equipment:								
Receiving: Horn T344, and Chamber D SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2.506	17.0	V	1.15	9.47	25.30	33.0	-7.7	
2.506	22.9	H	1.15	9.47	31.27	33.0	-1.7	
Mid Ch								
2.593	16.9	V	1.16	9.51	25.28	33.0	-7.7	
2.593	22.8	H	1.16	9.51	31.13	33.0	-1.9	
High Ch								
2.680	15.8	V	1.17	9.54	24.18	33.0	-8.8	
2.680	20.6	H	1.17	9.54	28.97	33.0	-4.0	
Rev. 10.24.13								

LAT 16QAM EIRP POWER FOR LTE BAND 41 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber D								
Company:		Apple						
Project #:		14U17673						
Date:		06/09/14						
Test Engineer:		M. Hua						
Configuration:		EUT Only						
Mode:		LTE Band 41 16QAM 20MHz BW						
Test Equipment:								
Receiving: Horn T344, and Chamber D SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2.506	16.0	V	1.15	9.47	24.30	33.0	-8.7	
2.506	21.9	H	1.15	9.47	30.27	33.0	-2.7	
Mid Ch								
2.593	15.9	V	1.16	9.51	24.28	33.0	-8.7	
2.593	21.8	H	1.16	9.51	30.13	33.0	-2.9	
High Ch								
2.680	14.8	V	1.17	9.54	23.18	33.0	-9.8	
2.680	19.6	H	1.17	9.54	27.97	33.0	-5.0	
Rev. 10.24.13								

UAT QPSK EIRP POWER FOR LTE BAND 41 (5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F								
Company:		Apple						
Project #:		14U17673						
Date:		06/12/14						
Test Engineer:		R.ZHENG						
Configuration:		EUT only						
Mode:		LTE Band 41 QPSK 5MHz BW						
Test Equipment:								
Receiving: Horn T120 and Chamber F SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2.499	12.4	V	1.15	9.42	20.67	33.0	-12.3	
2.499	18.3	H	1.15	9.55	26.65	33.0	-6.3	
Mid Ch								
2.593	12.3	V	1.16	9.63	20.77	33.0	-12.2	
2.593	17.7	H	1.16	9.69	26.23	33.0	-6.8	
High Ch								
2.688	12.1	V	1.17	9.76	20.69	33.0	-12.3	
2.688	16.6	H	1.17	9.77	25.24	33.0	-7.8	
Rev. 10.24.13								

UAT 16QAM EIRP POWER FOR LTE BAND 41 (5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F								
Company:		Apple						
Project #:		14U17673						
Date:		06/12/14						
Test Engineer:		R.ZHENG						
Configuration:		EUT only						
Mode:		LTE Band 41 16QAM 5MHz BW						
Test Equipment:								
Receiving: Horn T120 and Chamber F SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2.499	11.6	V	1.15	9.42	19.87	33.0	-13.1	
2.499	17.5	H	1.15	9.55	25.85	33.0	-7.1	
Mid Ch								
2.593	11.5	V	1.16	9.63	19.97	33.0	-13.0	
2.593	16.9	H	1.16	9.69	25.43	33.0	-7.6	
High Ch								
2.688	11.4	V	1.17	9.76	19.99	33.0	-13.0	
2.688	15.6	H	1.17	9.77	24.24	33.0	-8.8	
Rev. 10.24.13								

UAT QPSK EIRP POWER FOR LTE BAND 41 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F								
Company:		Apple						
Project #:		14U17673						
Date:		06/12/14						
Test Engineer:		R.ZHENG						
Configuration:		EUT only						
Mode:		LTE Band 41 QPSK 10MHz BW						
Test Equipment:								
Receiving: Horn T120 and Chamber F SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2.501	13.7	V	1.15	9.42	21.97	33.0	-11.0	
2.501	18.3	H	1.15	9.55	26.65	33.0	-6.3	
Mid Ch								
2.593	10.0	V	1.16	9.63	18.47	33.0	-14.5	
2.593	17.9	H	1.16	9.69	26.43	33.0	-6.6	
High Ch								
2.685	13.3	V	1.17	9.76	21.89	33.0	-11.1	
2.685	17.6	H	1.17	9.77	26.15	33.0	-6.8	
Rev. 10.24.13								

UAT 16QAM EIRP POWER FOR LTE BAND 41 (10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F								
Company:		Apple						
Project #:		14U17673						
Date:		06/12/14						
Test Engineer:		R.ZHENG						
Configuration:		EUT only						
Mode:		LTE Band 41 16QAM 10MHz BW						
Test Equipment:								
Receiving: Horn T120 and Chamber F SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2.501	12.8	V	1.15	9.42	21.07	33.0	-11.9	
2.501	17.4	H	1.15	9.55	25.75	33.0	-7.2	
Mid Ch								
2.593	9.1	V	1.16	9.63	17.57	33.0	-15.4	
2.593	17.0	H	1.16	9.69	25.53	33.0	-7.5	
High Ch								
2.685	12.4	V	1.17	9.76	20.99	33.0	-12.0	
2.685	16.7	H	1.17	9.77	25.25	33.0	-7.7	
Rev. 10.24.13								

UAT QPSK EIRP POWER FOR LTE BAND 41 (15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F								
Company:		Apple						
Project #:		14U17673						
Date:		06/12/14						
Test Engineer:		R.ZHENG						
Configuration:		EUT only						
Mode:		LTE Band 41 QPSK 15MHz BW						
Test Equipment:								
Receiving: Horn T120 and Chamber F SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2.504	13.6	V	1.15	9.42	21.87	33.0	-11.1	
2.504	18.1	H	1.15	9.55	26.45	33.0	-6.5	
Mid Ch								
2.593	9.1	V	1.16	9.63	17.57	33.0	-15.4	
2.593	18.1	H	1.16	9.69	26.58	33.0	-6.4	
High Ch								
2.683	13.0	V	1.17	9.76	21.59	33.0	-11.4	
2.683	17.5	H	1.17	9.77	26.14	33.0	-6.9	
Rev. 10.24.13								

UAT 16QAM EIRP POWER FOR LTE BAND 41 (15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F								
Company:		Apple						
Project #:		14U17673						
Date:		06/12/14						
Test Engineer:		R.ZHENG						
Configuration:		EUT only						
Mode:		LTE Band 41 16QAM 15MHz BW						
Test Equipment:								
Receiving: Horn T120 and Chamber F SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2.504	12.8	V	1.15	9.42	21.02	33.0	-12.0	
2.504	17.2	H	1.15	9.55	25.60	33.0	-7.4	
Mid Ch								
2.593	8.2	V	1.16	9.63	16.72	33.0	-16.3	
2.593	17.2	H	1.16	9.69	25.73	33.0	-7.3	
High Ch								
2.683	12.2	V	1.17	9.76	20.74	33.0	-12.3	
2.683	16.7	H	1.17	9.77	25.29	33.0	-7.7	
Rev. 10.24.13								

UAT QPSK EIRP POWER FOR LTE BAND 41 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F								
Company:		Apple						
Project #:		14U17673						
Date:		06/12/14						
Test Engineer:		R.ZHENG						
Configuration:		EUT only						
Mode:		LTE Band 41 QPSK 20MHz BW						
Test Equipment:								
Receiving: Horn T120 and Chamber F SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2.506	12.4	V	1.15	9.42	20.70	33.0	-12.3	
2.506	17.9	H	1.15	9.55	26.29	33.0	-6.7	
Mid Ch								
2.593	8.6	V	1.16	9.63	17.10	33.0	-15.9	
2.593	17.9	H	1.16	9.69	26.39	33.0	-6.6	
High Ch								
2.680	11.2	V	1.17	9.76	19.80	33.0	-13.2	
2.680	17.1	H	1.17	9.77	25.74	33.0	-7.3	
Rev. 10.24.13								

UAT 16QAM EIRP POWER FOR LTE BAND 41 (20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber F								
Company:		Apple						
Project #:		14U17673						
Date:		06/12/14						
Test Engineer:		R.ZHENG						
Configuration:		EUT only						
Mode:		LTE Band 41 16QAM 20MHz BW						
Test Equipment:								
Receiving: Horn T120 and Chamber F SMA Cables								
Substitution: Horn T60 Substitution, and 8ft SMA Cable								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2.506	11.5	V	1.15	9.42	19.80	33.0	-13.2	
2.506	17.0	H	1.15	9.55	25.39	33.0	-7.6	
Mid Ch								
2.593	7.7	V	1.16	9.63	16.20	33.0	-16.8	
2.593	17.0	H	1.16	9.69	25.49	33.0	-7.5	
High Ch								
2.680	10.3	V	1.17	9.76	18.90	33.0	-14.1	
2.680	16.2	H	1.17	9.77	24.84	33.0	-8.2	
Rev. 10.24.13								

9.2. PEAK-TO-AVERAGE RATIO

In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB

9.2.1. LTE BAND 2

Mode	Channel Band-width (MHZ)	Modulation	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio (PAR)
				*Peak	Average	
QPSK	1.4	RB1-0	1880	27.53	23.21	4.32
Mode	Channel Band-width	Ch. No.	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio
				*Peak	Average	
16QAM	1.4	RB1-0	1880	27.55	22.36	5.19
*Peak Reading = Average Reading + Peak-to-Average Ratio						

Mode	Channel Band-width (MHZ)	Modulation	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio (PAR)
				*Peak	Average	
QPSK	3.0	RB1-0	1880	27.62	23.26	4.36
Mode	Channel Band-width	Ch. No.	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio
				*Peak	Average	
16QAM	3.0	RB1-0	1880	27.63	22.33	5.3
*Peak Reading = Average Reading + Peak-to-Average Ratio						

Mode	Channel Band-width (MHZ)	Modulation	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio (PAR)
				*Peak	Average	
QPSK	5.0	RB1-0	1880	27.53	23.11	4.42
Mode	Channel Band-width	Ch. No.	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio
				*Peak	Average	
16QAM	5.0	RB1-0	1880	27.54	22.14	5.40
*Peak Reading = Average Reading + Peak-to-Average Ratio						

Mode	Channel Band-width (MHZ)	Modulation	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio (PAR)
				*Peak	Average	
QPSK	10.0	RB1-0	1880	27.41	23.24	4.17
Mode	Channel Band-width	Ch. No.	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio
				*Peak	Average	
16QAM	10.0	RB1-0	1880	27.42	22.27	5.15
*Peak Reading = Average Reading + Peak-to-Average Ratio						

Mode	Channel Band-width (MHZ)	Modulation	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio (PAR)
				*Peak	Average	
QPSK	15.0	RB1-0	1880	27.14	23.26	3.88
Mode	Channel Band-width	Ch. No.	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio
				*Peak	Average	
16QAM	15.0	RB1-0	1880	27.18	22.36	4.82
*Peak Reading = Average Reading + Peak-to-Average Ratio						

Mode	Channel Band-width (MHZ)	Modulation	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio (PAR)
				*Peak	Average	
QPSK	20.0	RB1-0	1880	27.02	23.08	3.94
Mode	Channel Band-width	Ch. No.	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio
				*Peak	Average	
16QAM	20.0	RB1-0	1880	27.02	22.04	4.98
*Peak Reading = Average Reading + Peak-to-Average Ratio						

9.2.2. LTE BAND 4

Mode	Channel Band-width (MHZ)	Modulation	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio (PAR)
				*Peak	Average	
QPSK	1.4	RB1-0	1732.5	29.21	24.20	5.01

Mode	Channel Band-width	Ch. No.	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio
				*Peak	Average	
16QAM	1.4	RB1-0	1732.5	29.34	23.31	6.03

*Peak Reading = Average Reading + Peak-to-Average Ratio

Mode	Channel Band-width (MHZ)	Modulation	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio (PAR)
				*Peak	Average	
QPSK	3.0	RB1-0	1732.5	29.49	24.3	5.19

Mode	Channel Band-width	Ch. No.	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio
				*Peak	Average	
16QAM	3.0	RB1-0	1732.5	29.13	23.34	5.79

*Peak Reading = Average Reading + Peak-to-Average Ratio

Mode	Channel Band-width (MHZ)	Modulation	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio (PAR)
				*Peak	Average	
QPSK	5.0	RB1-0	1732.5	29.19	24.2	4.99

Mode	Channel Band-width	Ch. No.	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio
				*Peak	Average	
16QAM	5.0	RB1-0	1732.5	29.00	23.14	5.86

*Peak Reading = Average Reading + Peak-to-Average Ratio

Mode	Channel Band-width (MHZ)	Modulation	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio (PAR)
				*Peak	Average	
QPSK	10.0	RB1-0	1732.5	29.17	24.26	4.91

Mode	Channel Band-width	Ch. No.	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio
				*Peak	Average	
16QAM	10.0	RB1-0	1732.5	28.99	23.31	5.68

*Peak Reading = Average Reading + Peak-to-Average Ratio

Mode	Channel Band-width (MHZ)	Modulation	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio (PAR)
				*Peak	Average	
QPSK	15.0	RB1-0	1732.5	29.11	24.25	4.86

Mode	Channel Band-width	Ch. No.	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio
				*Peak	Average	
16QAM	15.0	RB1-0	1732.5	28.99	23.28	5.71

*Peak Reading = Average Reading + Peak-to-Average Ratio

Mode	Channel Band-width (MHZ)	Modulation	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio (PAR)
				*Peak	Average	
QPSK	20.0	RB1-0	1732.5	29.01	24.02	4.99

Mode	Channel Band-width	Ch. No.	f (MHz)	Couducted Power (dBm)		Peak-to-Average Ratio
				*Peak	Average	
16QAM	20.0	RB1-0	1732.5	28.75	23.06	5.69

*Peak Reading = Average Reading + Peak-to-Average Ratio