QuieTek

Product	Intel 7260M2NA		
Test Mode	Frequency Stability Under Temperature Variation	ns & Voltage	Variations
Date of Test	2014/10/15	Test Site	CTR
Test Condition	Band 17 (10M) CH23790(710MHz) –16QAM	Test Range	-30°C ~+50°C

Frequency Stability Under Temperature Variations

Temperature	Test Frequency	Deviation	Limit
Interval(°C)	(GHz)	(kHz)	(kHz)
-30	0.71	0.0098	<u>+</u> 1.78
-20	0.71	0.0072	<u>+</u> 1.78
-10	0.71	0.0096	<u>+</u> 1.78
0	0.71	0.0114	<u>+</u> 1.78
10	0.71	0.0107	<u>+</u> 1.78
20	0.71	0.0121	<u>+</u> 1.78
30	0.71	0.0108	<u>+</u> 1.78
40	0.71	0.0114	<u>±</u> 1.78
50	0.71	0.0121	±1.78

Voltage Variations

AC Voltage	Test Frequency	Deviation	Limit
(V)	(GHz)	(kHz)	(kHz)
3.465	0.71	0.0111	±1.78
3.3	0.71	0.0107	±1.78
3.135	0.71	0.0132	±1.78

7. Peak to Average Ratio

7.1 Test Specification

According to Part 27.50(a).

7.2 Test Setup



7.3 Limits

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure.

7.4 Test Procedure

Quielek

- a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
- b) Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
- c) Set the number of counts to a value that stabilizes the measured CCDF curve;
- d) Set the measurement interval as follows:

1) for continuous transmissions, set to 1 ms,

2) for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.

e) Record the maximum PAPR level associated with a probability of 0.1%.



7.5 Test Result of Peak to Average Ratio

Product	Intel 7260M2NA		
Test Mode	Peak to Average Ratio		
Date of Test	2014/10/06	Test Site	CTR
Test Condition	LTE-Band 2		

nt Spectrum Analyzer - Power Stat CCDI SENSE:INT ALIGN AUTO 12:16:35 PM Sep.27, 2014 Center Freq: 1.880000000 GHz Radio Std: None Trig: Free Run Counts:1.00 M/1.00 Mpt #Atten: 30 dB Frequency #IFGain:Low 100 % Gaussian Average Power **Center Freq** 21.18 dBm 1.88000000 GHz 10 % 51.26 % at 0dB 1 % 10.0 % 2.26 dB 0.1 % 1.0 % 3.62 dB CF Step 5.000000 MHz Man 0.1 % 4.05 dB 0.01 % Auto 0.01 % 4.30 dB 0.001 % 4.50 dB Freq Offset 0.0001 % 4.55 dB 0.001 % 0 Hz 4.56 dB Peak 25.74 dBm 0.0001 % 20 dB 0 dB Info BW 2.0000 MHz STATUS

Band 2 (1.4M) QPSK

Band 2 (3M) QPSK

Agilent Spectrum Analyzer - Power Stat CCDF				
CX RF 50Ω AC	SENSE:IN	T ALIGN AUTO	12:21:37 PM Sep 27, 2014	Frequency
	Center Freq: '	Counts:1.00 M/1.00 M	Radio Std: None	requercy
#IFGain	Low #Atten: 30 dB		-	
8 9.4				
Average Power	100 % Gaussia	in		
				Center Fred
22.29 dBm				1.880000000 GHz
54 33 % at 0dB	10 %			
54.55 % at 00B				
	1%			
10.0 % 2.07 dB	0.1 %			
1.0 % 2.92 dB				
0.1% 3.20 dB		$ \rangle \rangle$		CF Step
0.01 W 2.25 dB	0.01 %			Auto Man
0.01 % 3.35 dB				
0.001 % 3.45 dB				Freg Offset
0.0001 % 3.50 dB	0.001 %			0 Hz
Peak 3.52 dB				
25.81 dBm				
	0.0001 %			
	Info BW	3.0000 MHz	∠∪ dB	
MSG		CTATI I		
		STATUS		



ent Spectrum Analyzer - Power Stat CCD SENSE:INT ALIGN AUTO 12:10:57 PM Sep 27, 2014 Center Freq: 1.880000000 GHz Radio Std: None Trig: Free Run Counts:1.00 M/1.00 Mpt , #Atten: 30 dB Frequency #IFGain:Low Average Power Gaussian 100 % **Center Freq** 21.13 dBm 1.88000000 GHz 10 % 50.26 % at 0dB 1 % 10.0 % 2.26 dB 0.1 % 1.0 % 3.87 dB CF Step 5.000000 MHz Man 0.1 % 4.65 dB 0.01 % Auto 5.06 dB 0.01 % 0.001 % 5.37 dB Freq Offset 0.0001 % 5.46 dB 0.001 % 0 Hz Peak 5.49 dB 26.62 dBm 0.0001 % 20 dB 0 dB Info BW 5.0000 MHz STATUS

Band 2 (5M) QPSK

Band 2 (10M) QPSK





ent Spectrum Analyzer - Power Stat CCD SENSE:INT ALIGN AUTO 12:25:22 PM Sep 27, 2014 Center Freq: 1.880000000 GHz Radio Std: None Trig: Free Run Counts:1.00 M/1.00 Mpt , #Atten: 30 dB Frequency #IFGain:Low Average Power Gaussian 100 % **Center Freq** 21.29 dBm 1.88000000 GHz 10 % 48.90 % at 0dB 1 % 10.0 % 2.29 dB 0.1 % 1.0 % 3.90 dB CF Step 5.000000 MHz Man 0.1 % 4.62 dB 0.01 % Auto 5.03 dB 0.01 % 0.001 % 5.39 dB Freq Offset 0.0001 % 5.61 dB 0.001 % 0 Hz Peak 5.67 dB 26.96 dBm 0.0001 % 20 dB 0 dB Info BW 25.000 MHz STATUS

Band 2 (15M) QPSK

Band 2 (20M) QPSK







Band 2 (1.4M) 16QAM

Band 2 (3M) 16QAM





ent Spectrum Analyzer - Power Stat CCD SENSE:INT ALIGN AUTO 12:22:43 PM Sep 27, 2014 Center Freq: 1.880000000 GHz Radio Std: None Trig: Free Run Counts:1.00 M/1.00 Mpt , #Atten: 30 dB Frequency #IFGain:Low Average Power Gaussian 100 % **Center Freq** 20.15 dBm 1.88000000 GHz 10 % 46.20 % at 0dB 1 % 10.0 % 2.87 dB 0.1 % 1.0 % 4.57 dB CF Step 5.000000 MHz Man 0.1 % 5.44 dB 0.01 % Auto 6.00 dB 0.01 % 0.001 % 6.30 dB Freq Offset 0.0001 % 6.54 dB 0.001 % 0 Hz Peak 6.62 dB 26.77 dBm 0.0001 % 20 dB 0 dB Info BW 5.0000 MHz STATUS

Band 2 (5M) 16QAM

Band 2 (10M) 16QAM





nt Spectrum Analyzer - Power Stat CCD SENSE:INT ALIGN AUTO 12:25:33 PM Sep 27, 2014 Center Freq: 1.880000000 GHz Radio Std: None Trig: Free Run Counts:1.00 M/1.00 Mpt , #Atten: 30 dB Frequency #IFGain:Low Average Power Gaussian 100 % **Center Freq** 20.38 dBm 1.88000000 GHz 10 % 46.38 % at 0dB 1 % 2.85 dB 10.0 % 0.1 % 1.0 % 4.51 dB CF Step 5.000000 MHz Man 5.30 dB 0.1 % 0.01 % Auto 5.79 dB 0.01 % 0.001 % 6.05 dB Freq Offset 0.0001 % 6.24 dB 0.001 % 0 Hz Peak 6.26 dB 26.64 dBm 0.0001 % 0 dB Info BW 25.000 MHz 20 dB STATUS

Band 2 (15M) 16QAM

Band 2 (20M) 16QAM

Agilent Spectrum Analyzer - Power Stat CCDF		
UX RF 50Ω AC	SENSE:INT ALIGN AUTO 12:26:01 PM Sep 27, 2014 Center Freq: 1.880000000 GHz Radio Std: None	Frequency
#IFGain:	Trig: Free Run Counts:1.00 M/1.00 Mpt Low #Atten: 30 dB	
Average Power	100 % Gaussian	
20.41 dBm		Center Freq 1.880000000 GHz
45.48 % at 0dB	10 %	
	1 %	
10.0 % 2.93 dB	0.1%	
1.0 % 4.68 dB		
0.1 % 5.56 dB		CF Step 5.000000 MHz
0.01 % 6.15 dB	0.01 %	<u>Auto</u> Man
0.001 % 6.59 dB		Eren Offset
0.0001 % 6.78 dB	0.001 %	0 Hz
Peak 6.82 dB 27.23 dBm		
	0.0001 % L	
MSG	STATUS	

QuieTek

Product	Intel 7260M2NA		
Test Mode	Peak to Average Ratio		
Date of Test	2014/10/06	Test Site	CTR
Test Condition	LTE-Band 4		

Band 4 (1.4M) QPSK



Band 4 (3M) QPSK

Agilent Spectrum Ana	alyzer - Power Stat CCDF							
RF	50 Ω AC		SENSE:INT		ALIGN AUTO	12:37:05	PM Sep 27, 2014	Frequency
	#IEGair	n:Low #At	nter Freq: 1.7323 g: Free Run ten: 30 dB	Coun	12 ts:1.00 M/1.00	Radio Sto Mpt	1: None	. requeries
Average I	Power	100 %	Gaussian		1 1 1			
21.45	dBm							Center Freq
47.30	% at 0dB	10 %		_				1.732500000 GHz
		1 %	$ \rightarrow $	-				
			1	$\langle \rangle$				
10.0 %	2.40 dB	0.1 %		$\left \right $	\mathbf{N}			
1.0 %	4.36 dB							
0.1 %	5.37 dB	0.01.0/						CF Step 5.000000 MHz
0.01 %	5.97 dB	0.01%			V			<u>Auto</u> Man
0.001 %	6.72 dB			L				Freq Offset
0.0001 %	6.81 dB	0.001 %		$-\Pi$				0 Hz
Peak	6.85 dB							
28	3.30 dBm							
		0.0001 %	0 dB		•		20 dB	
					2			
MSG					STAT	US		



ent Spectrum Analyzer - Power Stat CCD SENSE:INT ALIGN AUTO 12:34:40 PM Sep 27, 2014 Center Freq: 1.732500000 GHz Radio Std: None Trig: Free Run Counts:1.00 M/1.00 Mpt , #Atten: 30 dB Frequency #IFGain:Low Average Power Gaussian 100 % **Center Freq** 21.34 dBm 1.732500000 GHz 10 % 46.70 % at 0dB 1 % 10.0 % 2.38 dB 0.1 % 1.0 % 4.40 dB CF Step 5.000000 MHz Man 5.46 dB 0.1 % 0.01 % Auto 6.09 dB 0.01 % 0.001 % 6.46 dB Freq Offset 0.0001 % 6.59 dB 0.001 % 0 Hz 6.61 dB Peak 27.95 dBm 0.0001 % 20 dB 0 dB Info BW 5.0000 MHz STATUS

Band 4 (5M) QPSK

Band 4 (10M) QPSK





nt Spectrum Analyzer - Power Stat CCD SENSE:INT ALIGN AUTO 12:31:34 PM Sep 27, 2014 Center Freq: 1.732500000 GHz Radio Std: None Trig: Free Run Counts:1.00 M/1.00 Mpt , #Atten: 30 dB Frequency #IFGain:Low Average Power Gaussian 100 % **Center Freq** 21.47 dBm 1.732500000 GHz 10 % 46.08 % at 0dB 1 % 10.0 % 2.44 dB 0.1 % 1.0 % 4.38 dB CF Step 5.000000 MHz Man 5.36 dB 0.1 % 0.01 % Auto 5.89 dB 0.01 % 0.001 % 6.24 dB Freq Offset 0.0001 % 6.31 dB 0.001 % 0 Hz Peak 6.37 dB 27.84 dBm 0.0001 % 20 dB 0 dB Info BW 25.000 MHz STATUS

Band 4 (15M) QPSK

Band 4 (20M) QPSK





ent Spectrum Analyzer - Power Stat CCD SENSE:INT ALIGN AUTO 12:33:33 PM Sep 27, 2014 Center Freq: 1.732500000 GHz Radio Std: None Trig: Free Run Counts:1.00 M/1.00 Mpt , #Atten: 30 dB Frequency #IFGain:Low Average Power Gaussian 100 % **Center Freq** 20.37 dBm 1.732500000 GHz 10 % 44.79 % at 0dB 1 % 10.0 % 2.91 dB 0.1 % 1.0 % 4.97 dB CF Step 5.000000 MHz Man 6.14 dB 0.1 % 0.01 % Auto 6.60 dB 0.01 % 0.001 % 6.73 dB Freq Offset 0.0001 % 6.77 dB 0.001 % 0 Hz Peak 6.78 dB 27.15 dBm 0.0001 % 20 dB 0 dB Info BW 2.0000 MHz STATUS

Band 4 (1.4M) 16QAM

Band 4 (3M) 16QAM





nt Spectrum Analyzer - Power Stat CCD SENSE:INT ALIGN AUTO 12:34:53 PM Sep 27, 2014 Center Freq: 1.732500000 GHz Radio Std: None Trig: Free Run Counts:1.00 M/1.00 Mpt , #Atten: 30 dB Frequency #IFGain:Low Average Power Gaussian 100 % **Center Freq** 20.24 dBm 1.732500000 GHz 10 % 44.36 % at 0dB 1 % 10.0 % 2.93 dB 0.1 % 1.0 % 4.97 dB CF Step 5.000000 MHz Man 6.23 dB 0.1 % 0.01 % Auto 7.09 dB 0.01 % 0.001 % 7.85 dB Freq Offset 0.0001 % 8.00 dB 0.001 % 0 Hz Peak 8.01 dB 28.25 dBm 0.0001 % 20 dB 0 dB Info BW 5.0000 MHz STATUS

Band 4 (5M) 16QAM

Band 4 (10M) 16QAM





ent Spectrum Analyzer - Power Stat CCD SENSE:INT ALIGN AUTO 12:31:48 PM Sep 27, 2014 Center Freq: 1.732500000 GHz Radio Std: None Trig: Free Run Counts:1.00 M/1.00 Mpt , #Atten: 30 dB Frequency #IFGain:Low Average Power Gaussian 100 % **Center Freq** 20.36 dBm 1.732500000 GHz 10 % 44.23 % at 0dB 1 % 10.0 % 2.93 dB 0.1 % 1.0 % 4.96 dB CF Step 5.000000 MHz Man 6.07 dB 0.1 % 0.01 % Auto 6.76 dB 0.01 % 0.001 % 7.24 dB Freq Offset 0.0001 % 7.48 dB 0.001 % 0 Hz Peak 7.48 dB 27.84 dBm 0.0001 % 20 dB 0 dB Info BW 25.000 MHz STATUS

Band 4 (15M) 16QAM

Band 4 (20M) 16QAM



QuieTek

Product	Intel 7260M2NA		
Test Mode	Peak to Average Ratio		
Date of Test	2014/10/06	Test Site	CTR
Test Condition	LTE-Band 5		

Band 5 (1.4M) QPSK



Band 5 (3M) QPSK

Agilent Spectrum Ana	alyzer - Power Stat CCDF								
CXI RF	50 Ω AC		SEN	SE:INT		ALIGN AUTO	12:55:36	PM Sep 27, 2014	Frequency
		Ce Tri	g: Free	eq: 836.50000 Run	Count	s:1.00 M/1.00 N	Apt Sto	i: None	
	#IFGai	n:Low #At	ten: 30	dB			8		
	_								
Average I	Power	100 %	Gaus	ssian					
									Center Fred
21.25	dBm		1						836.500000 MHz
49 95	% at 0dB	10 %		\sim					
40.00									
					Į				
		1 %			Λ_		_		
				Λ	$ \rangle$				
					$ \rangle$				
10.0 %	2.35 dB	0.1 %							
1.0 %	3.93 dB					\backslash			
01%	4 67 dB								CF Step
0.1 /0		0.01 %		\rightarrow					Auto Man
0.01 %	5.09 dB								
0.001 %	5.61 dB								Fred Offset
0.0001 %	5.71 dB	0.001 %					_		0 Hz
Peak	5 73 dB								
26	5 98 dBm								
		0.0001 %							
			0 dB	BM 3 000	- ML-			20 dB	
			mo	544 J.000		-			
MSG						STATU	S		



nt Spectrum Analyzer - Power Stat CCD SENSE:INT ALIGN AUTO 12:54:58 PM Sep 27, 2014 Center Freq: 836.500000 MHz Radio Std: None Trig: Free Run Counts:1.00 M/1.00 Mpt , #Atten: 30 dB Frequency #IFGain:Low Average Power Gaussian 100 % **Center Freq** 21.08 dBm 836.500000 MHz 10 % 48.65 % at 0dB 1 % 2.36 dB 10.0 % 0.1 % 1.0 % 4.01 dB **CF Step** 25.000000 MHz <u>o</u> Man 4.77 dB 0.1 % 0.01 % Auto 5.17 dB 0.01 % 0.001 % 5.49 dB Freq Offset 0.0001 % 5.57 dB 0.001 % 0 Hz Peak 5.57 dB 26.65 dBm 0.0001 % 0 dB Info BW 5.0000 MHz 20 dB STATUS

Band 5 (5M) QPSK

Band 5 (10M) QPSK

Agilent Spectrum Analyzer - Power Stat CCDF		
22 RF 50Ω AC ////////////////////////////////////	SENSE:INT ALIGNAUTO 12:56:25PM Sep 27, 2014 Center Freq: 836.500000 MHz Radio Std: None Trig: Free Run Counts:1.00 M/1.00 Mpt Low #Atten: 30 dB	Frequency
Average Power	100 % Gaussian	
21.21 dBm		Center Freq 836.500000 MHz
48.02 % at 0dB	10 %	
	1%	
10.0 % 2.36 dB	0.1 %	
0.1 % 4.88 dB	0.01 %	CF Step 25.000000 MHz Auto Man
0.01 % 5.32 dB 0.001 % 5.71 dB		Freq Offset
0.0001 % 5.98 dB Peak 6.10 dB	0.001 %	0 Hz
27.31 dBm	0.0001 %	
MSG	STATUS	



ent Spectrum Analyzer - Power Stat CCD
 SENSE:INT
 ALIGN AUTO
 12:57:10 PM Sep 27, 2014

 Center Freq: 836.500000 MHz
 Radio Std: None

 Trig: Free Run
 Counts:1.00 M/1.00 Mpt

 #Atten: 30 dB
 Frequency #IFGain:Low Average Power Gaussian 100 % **Center Freq** 20.20 dBm 836.500000 MHz 10 % 46.47 % at 0dB 1 % 10.0 % 2.93 dB 0.1 % 1.0 % 4.48 dB **CF Step** 25.000000 MHz <u>o</u> Man 0.1 % 5.08 dB 0.01 % Auto 5.28 dB 0.01 % 0.001 % 5.39 dB Freq Offset 0.0001 % 5.44 dB 0.001 % 0 Hz Peak 5.47 dB 25.67 dBm 0.0001 % 20 dB 0 dB Info BW 2.0000 MHz STATUS

Band 5 (1.4M) 16QAM

Band 5 (3M) 16QAM





nt Spectrum Analyzer - Power Stat CCD
 SENSE:INT
 ALIGN AUTO
 12:55:13 PM Sep 27, 2014

 Center Freq: 836.500000 MHz
 Radio Std: None

 Trig: Free Run
 Counts:1.00 M/1.00 Mpt

 #Atten: 30 dB
 Frequency #IFGain:Low Average Power Gaussian 100 % **Center Freq** 20.14 dBm 836.500000 MHz 10 % 45.58 % at 0dB 1 % 10.0 % 2.94 dB 0.1 % 4.64 dB 1.0 % **CF Step** 25.000000 MHz <u>o</u> Man 5.53 dB 0.1 % 0.01 % Auto 6.10 dB 0.01 % 0.001 % 6.48 dB Freq Offset 0.0001 % 6.64 dB 0.001 % 0 Hz 6.65 dB Peak 26.79 dBm 0.0001 % 0 dB Info BW 5.0000 MHz 20 dB STATUS

Band 5 (5M) 16QAM

Band 5 (10M) 16QAM

Agilent Spectrum Analyzer - Power Stat CCDF		
102 RF 50 Ω AC 	SENSE:INT ALIGNAUTO 12:56:33 PM Sep 27, 2014 Center Freq: 336.500000 MHz Radio Std: None Trip: Free Run Counts:1.00 M/1.00 Mpt Low #Atten: 30 dB	Frequency
Average Power	100 % Gaussian	
20.19 dBm		Center Freq 836.500000 MHz
45.40 % at 0dB	10 %	
	1 %	
10.0 % 2.95 dB	0.1 %	
0.1 % 5.60 dB	0.01 %	CF Step 25.000000 MHz Auto Man
0.01 % 6.17 dB 0.001 % 6.50 dB		Freq Offset
0.0001 % 6.61 dB Peak 6.80 dB	0.001 %	0 Hz
26.99 dBm	0.0001 %	
MSG	Info BW 10.000 MHz	



Product	Intel 7260M2NA					
Test Mode	Peak to Average Ratio					
Date of Test	2014/10/06	Test Site	CTR			
Test Condition	LTE-Band 17					

Band 17 (5M) QPSK



Band 17 (10M) QPSK

Agilent Spectrum Analyzer - Power Stat Co	CDF							
KA RF 50Ω AC	SENSE:INT ALIGNAUTO 01:00:04 PM Sep 27, 2	Frequency						
HFGain:Low #Atten: 30 dB								
Average Power	Gaussian							
22.26 dBm		Center Freq 710.000000 MHz						
49.26 % at 0dB	10 %							
	1 %							
10.0 % 2.32 dB	0.1 %	_						
1.0 % 4.04 dB 0.1 % 4.87 dB	0.01 %	CF Step 25.000000 MHz Auto Man						
0.01 % 5.30 dB 0.001 % 5.61 dB		Freq Offset						
0.0001 % 5.67 dB	0.001 %	0 Hz						
Реак 5.68 dB 27.94 dBm								
	dB							
NSG STATUS								





Band 17 (5M) 16QAM

Band 17 (10M) 16QAM

Agilent Spectrum Ana	alyzer - Power Stat CCDF								
LXI RF	50 Ω AC	Cer	SENSE	INT 710.0000	00 MH2	ALIGN AUTO	01:00:13PM Radio Std: 1	Sep 27, 2014	Frequency
Trig: Free Run Counts:1.00 M/1.00 Mpt #IEGain-I ow #Atten: 30 dB									
#Foam.uw #Reen. oo vo									
Average Power		100 %	100 % Gaussian						
04.00 dBm									Center Freq
21.39 dBm									710.000000 MHz
46.52 % at 0dB		10 %		\mathcal{H}					
				XX					
		1 %			Λ_				
					$ \rangle$				
10.0 %	2 89 dB								
10.0%	4.64 dB	0.1 %							
0.1.0/	4.04 0D			1					CF Step
0.1%	0.00 dB	0.01 %			1				25.000000 MHz Auto Man
0.01 %	6.08 dB				1				
0.001 %	6.43 dB				ll l				Freq Offset
0.0001 %	6.78 dB	0.001 %							0 Hz
Peak	6.87 dB				1				
28	3.26 aBM	0.0001 %							
0 dB 20 dB 20 dB									



Attachment 1: EUT Test Photographs



Attachment 2: EUT Detailed Photographs