

### TTE Technology, Inc.

Application For Certification

### FCC ID: W8UGE42V1EA

### **LCD Multimedia Player**

### Model: GE42V1EA

Additional Models: GE42V2EA, GE42V3EA, GE42V4EA, GE42V5EA, GE42V6EA, GE42V7EA, GE42V8EA, GE42V9EA, GE42V1ED, GE42V1EP, GE42V1EDTH, GE42V1EPTH, GE42V2ED, GE42V2EP, GE42V2EDTH, GE42V2EPTH, GE42V3ED, GE42V3EP, GE42V3EDTH, GE42V3EPTH, GE42V4ED, GE42V4EP, GE42V4EDTH, GE42V4EPTH, GE42V5ED, GE42V5EP, GE42V5EDTH, GE42V5EPTH, GE42V6ED, GE42V6EP, GE42V6EDTH, GE42V6EPTH, GE42V7ED, GE42V7EP, GE42V7EDTH, GE42V7EPTH, GE42V8ED, GE42V8EP, GE42V8EDTH, GE42V8EPTH, GE42V9ED, GE42V9EP, GE42V9EDTH, GE42V9EPTH

### **Trademark: TCL**

#### WiFi Transceiver

### Report No.: 130515023SZN-001

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-12]

Prepared and Checked by:

Approved by:

Sign on file Jenner Liu Testing Engineer

Billy Li Supervisor Date: July 18, 2013

• The test results reported in this test report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample may be said to have been obtained.

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results referenced from this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

For Terms And Conditions of the services, it can be provided upon request

• The evaluation data of the report will be kept for 3 years from the date of issuance.

TRF no.: FCC 15C\_Tx\_b

#### Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch

6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China Tel: (86 755) 8601 6288 Fax: (86 755) 8601 6751 Website: www.china.intertek-etlsemko.com

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### MEASUREMENT/TECHNICAL REPORT TTE Technology, Inc. MODEL: GE42V1EA

Additional Models: GE42V2EA, GE42V3EA, GE42V4EA, GE42V5EA, GE42V6EA, GE42V7EA, GE42V8EA, GE42V9EA, GE42V1ED, GE42V1EP, GE42V1EDTH, GE42V1EPTH, GE42V2ED, GE42V2EP, GE42V2EDTH, GE42V2EPTH, GE42V3ED, GE42V3EP, GE42V3EDTH, GE42V3EPTH, GE42V4ED, GE42V4EP, GE42V4EDTH, GE42V4EPTH, GE42V5ED, GE42V5EP, GE42V5EDTH, GE42V5EPTH, GE42V6ED, GE42V6EP, GE42V6EDTH, GE42V6EPTH, GE42V7ED, GE42V7EP, GE42V7EDTH, GE42V7EPTH, GE42V8ED, GE42V8EPTH, GE42V8EPTH, GE42V9ED, GE42V9EP, GE42V9EDTH, GE42V9EPTH FCC ID: W8UGE42V1EA

This report concerns (check one)	Original Grant <u>X</u> Class II Change
Equipment Type: <u>DTS - Part 15 Di</u> portion)	igital Transmission Systems (WiFi transmitter
Deferred grant requested per 47 CFR	R 0.457(d)(1)(ii)? Yes NoX
	If yes, defer until : date
Company Name agrees to notify the	Commission by:
	date
of the intended date of announcem issued on that date.	ent of the product so that the grant can be
Transition Rules Request per 15.37?	Yes NoX
If no, assumed Part 15, Subpart C [10-01-12 Edition] provision.	C for intentional radiator - the new 47 CFR
Report prepared by:	
	Jenner Liu Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch 6F, Block D, Huahan Building, Langshan Road

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## List of attached file

Exhibit type	File Description	Filename
Test Report	Test Report	report.pdf
Test Setup Photo	Radiated Emission	radiated photos.pdf
Test Setup Photo	Conducted Emission	conducted photos.pdf
External Photo	External Photo	external photos.pdf
Internal Photo	Internal Photo	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
Operation Description	Technical Description	descri.pdf
ID Label/Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
Cover Letter	Confidentiality Letter	request.pdf
Cover Letter	Letter of Agency	agency.pdf
Cover Letter	Certification Agreement	agreement.pdf

# **EXHIBIT 1**

# SUMMARY OF TEST RESULTS

#### 1.0 Summary of Test

#### TTE Technology, Inc. MODEL: GE42V1EA

Additional Models: GE42V2EA, GE42V3EA, GE42V4EA, GE42V5EA, GE42V6EA, GE42V7EA, GE42V8EA, GE42V9EA, GE42V1ED, GE42V1EP, GE42V1EDTH, GE42V1EPTH, GE42V2ED, GE42V2EP, GE42V2EDTH, GE42V2EPTH, GE42V3ED, GE42V3EP, GE42V3EDTH, GE42V3EPTH, GE42V4ED, GE42V4EP, GE42V4EDTH, GE42V4EPTH, GE42V5ED, GE42V5EP, GE42V5EDTH, GE42V5EPTH, GE42V6ED, GE42V6EP, GE42V6EDTH, GE42V6EPTH, GE42V7ED, GE42V7EP, GE42V7EDTH, GE42V7EPTH, GE42V8ED, GE42V8EP, GE42V8EDTH, GE42V8EPTH, GE42V9ED, GE42V9EP, GE42V9EDTH, GE42V9EPTH

### FCC ID: W8UGE42V1EA

TEST	REFERENCE	RESULTS
Max. Output power	15.247(b)(3)	Pass
6 dB Bandwidth	15.247(a)(2)	Pass
Max. Power Density	15.247(e)	Pass
Out of Band Antenna Conducted Emission	15.247(d)	Pass
Radiated Emission in Restricted Bands	15.247(d)	Pass
AC Conducted Emission	15.207	Pass
Antenna Requirement	15.203	Pass (See Notes)

Notes: The EUT uses a detachable Antenna with inverse SMA connector which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.

## EXHIBIT 2

## **GENERAL DESCRIPTION**

#### 2.0 General Description

#### 2.1 Product Description

The Equipment Under Test (EUT) is a LCD Multimedia Player with internal WiFi function operating at 2412-2462MHz for 802.11b/g/n-HT20, 11 channels with 5MHz channel spacing and 2422-2452MHz for 802.11n-HT40, 7 channels with 5MHz channel spacing. The EUT can be powered by AC 120V, 60Hz. For more detailed features description, please refer to the user's manual.

Type of Modulation: BPSK, QPSK, 16QAM, 64QAM, CCK. Antenna Type: Detachable Antenna with inverse SMA connector.

The Models: GE42V2EA, GE42V3EA, GE42V4EA, GE42V5EA, GE42V6EA, GE42V7EA, GE42V8EA, GE42V9EA, GE42V1ED, GE42V1EP, GE42V1EDTH, GE42V2ED, GE42V2EP, GE42V2EDTH, GE42V2EPTH, GE42V3ED, GE42V3EP, GE42V3EPTH, GE42V3EPTH, GE42V4EP, GE42V4ED, GE42V4EP, GE42V4EDTH, GE42V6ED, GE42V6EP, GE42V5ED, GE42V5ED, GE42V5ED, GE42V5ED, GE42V7ED, GE42V7EP, GE42V7ED, GE42V7ED, GE42V7ED, GE42V7EDTH, GE42V9ED, GE42V9EP, GE42V8ED, GE42V8EP, GE42V8EDTH, GE42V9ED, GE42V9EP, GE42V9ED, GE42V9EP, GE42V9ED, GE42V9EP, GE42V9ED, GE42V9ED, GE42V9EP, GE42V9ED, GE42V9EP, GE42V1EA in hardware aspect (electrically identical). The difference in model number serves as marketing strategy.

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

#### 2.2 Related Submittal(s) Grants

This is an application for certification of:

DTS- Part 15 Digital Transmission Systems (WiFi transmitter portion)

Remaining portions are subject to the following procedures:

- 1. Receiver portion of WiFi: exempt from technical requirement of this Part.
- 2. Other Digital Function: Report No.: 130515022SZN-001

#### 2.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2009) and KDB 558074. Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "Justification Section" of this Application. All other measurements were made in accordance with the procedures in part 2 of CFR 47.

#### 2.4 Test Facility

The Semi-Anechoic chamber and shield room used to collect the radiated data and conducted data are **Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch** and located at 6F, Block D, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China. This test facility and site measurement data have been fully placed on file with the FCC (Registration Number: 242492).

# **EXHIBIT 3**

## SYSTEM TEST CONFIGURATION

#### 3.0 System Test Configuration

#### 3.1 Justification

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables and accessories were manipulated to produce worst case emissions. The EUT was powered by AC 120V, 60Hz during the test. Only the worst case data was reported.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

#### 3.2 EUT Exercising Software

The EUT exercise program (provided by client) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The worst case configuration is used in all specified testing.

#### The parameters of test software setting:

During the test, Channel and power controlling software provided by the applicant was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the application and is going to be fixed on the firmware of the end product.

	Test software setting of IEEE 802.11b/g/n		
Channel No.	Output Power Level	Data rate	Modulation type
4.0.44	15.0	802.11b: 1-11Mbps	802.11b: CCK
1,6,11	15.0	802.11g: 6-54Mbps	802.11g: BPSK, QPSK, 16QAM
1,6,11	15.0	802.11n-HT20: 6.5- 65Mbps	802.11n: BPSK, QPSK, 16QAM,
3,6,9	15.0	802.11n-HT40: 13.5- 135Mbps	802.11n: BPSK, QPSK, 16QAM, 64QAM

Power Parameters of IEEE 802.11b/g/n

We test all data rate and only the worst – case data is shown in the report.

3.3 Special Accessories

N/A

#### 3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

Uncertainty and Compliance – Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

#### 3.5 Equipment Modification

Any modifications installed previous to testing by TTE Technology, Inc. will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch.

3.6 Support Equipment List and Description

This product was tested in the following configuration:

Description	Manufacturer	Model No.
USB Disk	TOSHIBA	UHYBS-004G-BL
SD Card	Transcend	4G SDHC
Router	TP-Link	S535D24
RJ 45 Cable	N/A	Unshielded 4m

Refer List:

# **EXHIBIT 4**

## **MEASUREMENT RESULTS**

Applicant: TTE Technology, Inc. Model: GE42V1EA Date of Test: July 18, 2013

#### 4.0 Measurement Results

- 4.1 Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b) (3):
  - [] The antenna power of the EUT was connected to the input of a spectrum analyzer. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.
  - [] The antenna port of the EUT was connected to the input of a spectrum analyzer. The analyzer was set according to the FCC KDB 558074 spectrum analyzer's integrated band power measurement function with band limits set equal to the EBW band edges and power was read directly in dBm. External attenuation and cable loss were compensated from the measured value.
  - [×] The antenna power of the EUT was connected to the input of a broadband peak RF power meter. The power meter have a video bandwidth that is greater than DTS bandwidth and utilize a fast-responding diode detector. Power was read directly at the EUT antenna terminals with cable loss added.

For antennas with gains of 6 dBi or less, maximum allowed Transmitter output is 1 watt (+30 dBm).

IEEE 802.11b (Antenna Gain = 5dBi) (CCK, 1Mbps)		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2412	13.52	22.49
Middle Channel: 2437	13.86	24.32
High Channel: 2462	14.14	25.94

IEEE 802.11g (Antenna Gain = 5dBi) (16QAM, 6Mbps)		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2412	15.04	31.92
Middle Channel: 2437	17.19	52.36
High Channel: 2462	15.56	35.97

IEEE 802.11n-HT20 (Antenna Gain = 5dBi) (16QAM, 6.5Mbps)		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2412	13.04	20.14
Middle Channel: 2437	12.74	18.79
High Channel: 2462	13.13	20.56

IEEE 802.11n-HT40 (Antenna Gain = 5dBi) (64QAM, 13.5Mbps)		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2422	14.26	26.67
Middle Channel: 2437	12.57	18.07
High Channel: 2452	13.13	20.56

Cable loss: <u>1.1</u> dB External Attenuation: 0 dB

EUT max. output level (dBm)= 17.19dBm

Applicant: TTE Technology, Inc. Model: GE42V1EA Date of Test: July 18, 2013

4.2 Minimum 6 dB RF Bandwidth, FCC Rule 15.247(a) (2):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100 KHz according to FCC KDB 558074. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn 6 dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

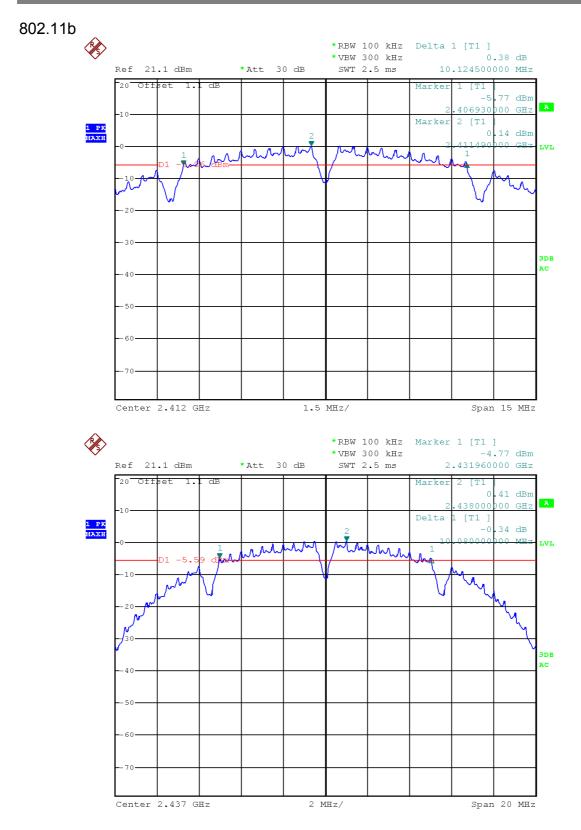
Limit: The 6 dB Bandwidth is at least 500 kHz.

IEEE 802.11b (CCK, 1Mbps)		
Frequency (MHz)	6 dB Bandwidth (MHz)	
2412	10.12	
2437	10.08	
2462	10.08	

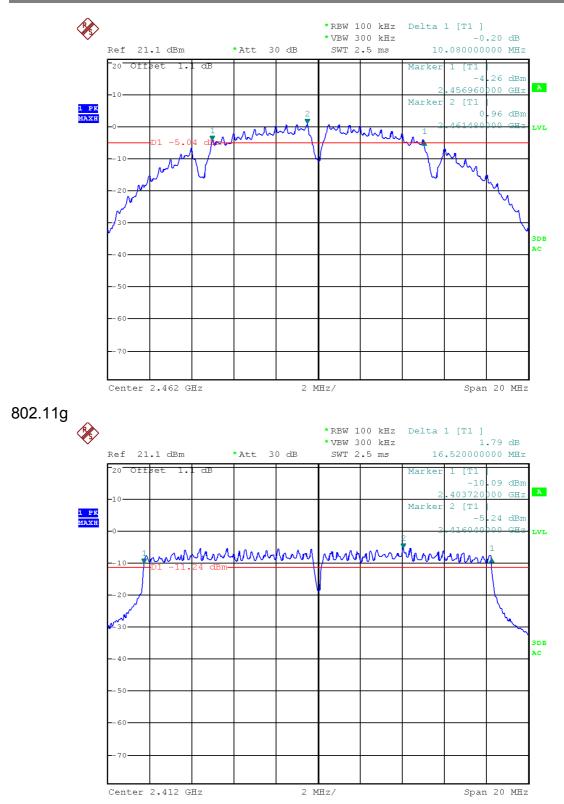
IEEE 802.11g (16QAM, 6Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	16.52
2437	16.56
2462	16.52
IEEE 802.11n-HT20 (16QAM, 6.5Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	17.80
2437	17.80
2462	17.80

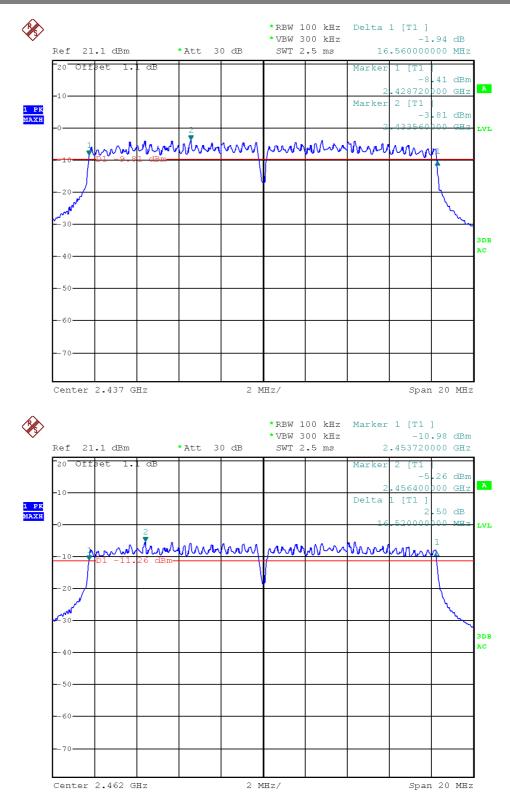
IEEE 802.11n-HT40 (64QAM, 13.5Mbps)		
Frequency (MHz)	6 dB Bandwidth (MHz)	
2422	36.40	
2437	36.40	
2452	36.40	

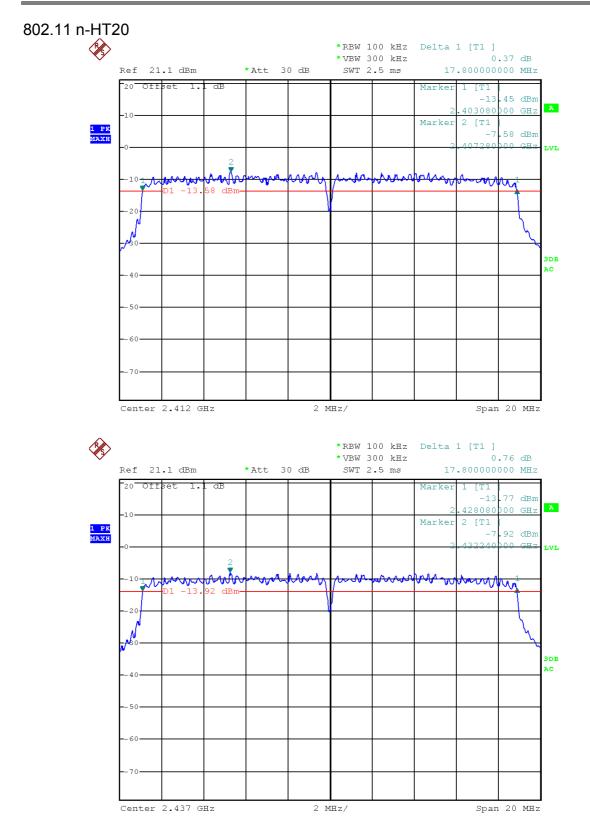
The test plots are attached as below.

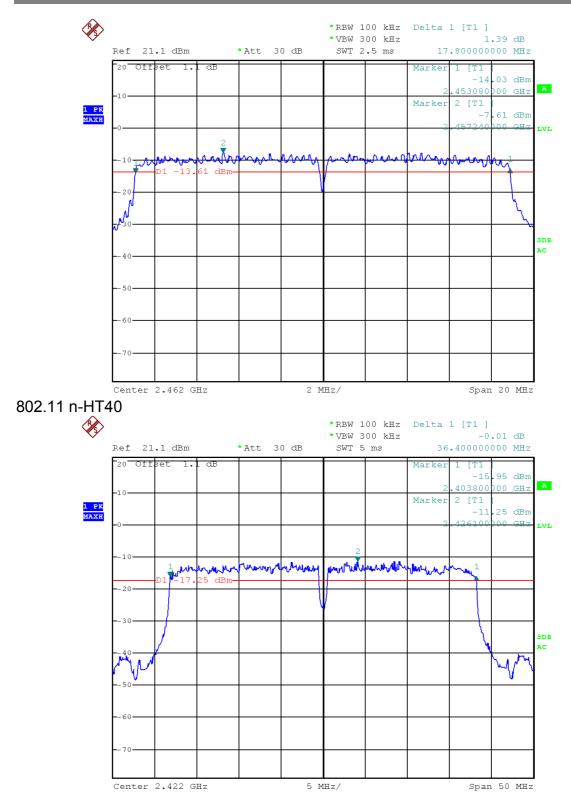


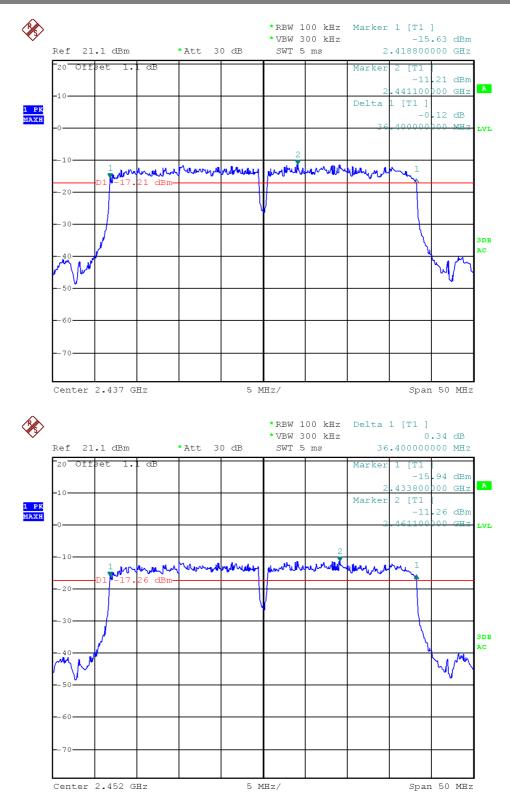












Applicant: TTE Technology, Inc. Model: GE42V1EA Date of Test: July 18, 2013

4.3 Maximum Power Density Reading, FCC Rule 15.247(e):

The Measurement Procedure PKPSD was set according to the FCC KDB 558074. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW. If the measured value exceed limit, reduce the RBW (no less than 3KHz) to retest.

Antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

Limit: The Power Density does not exceed 8dBm/ 3 kHz.

IEEE 802.11b (CCK, 1Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2412	-0.31
2437	2.29
2462	0.38

IEEE 802.11g (16QAM, 6Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2412	-5.62
2437	-5.21
2462	-5.13

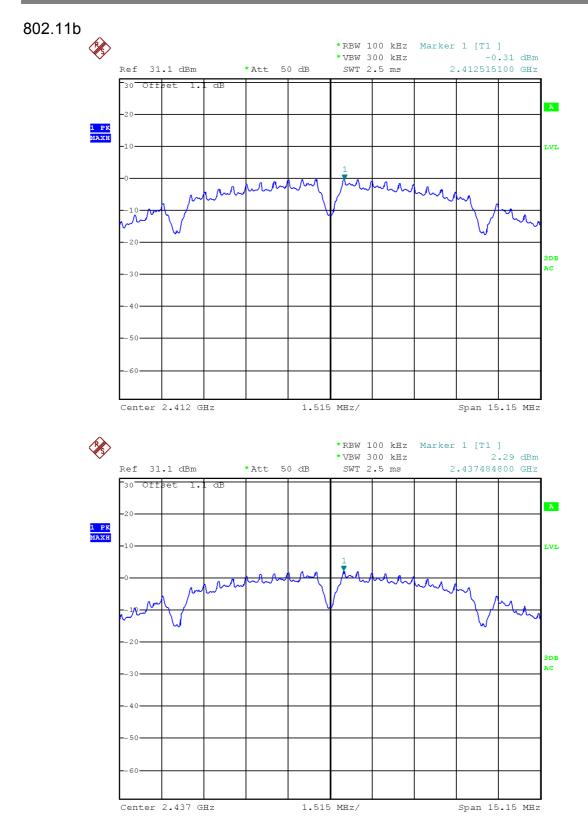
IEEE 802.11n-HT20 (16QAM, 6.5Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2412	-7.73
2437	-8.55
2462	-7.67

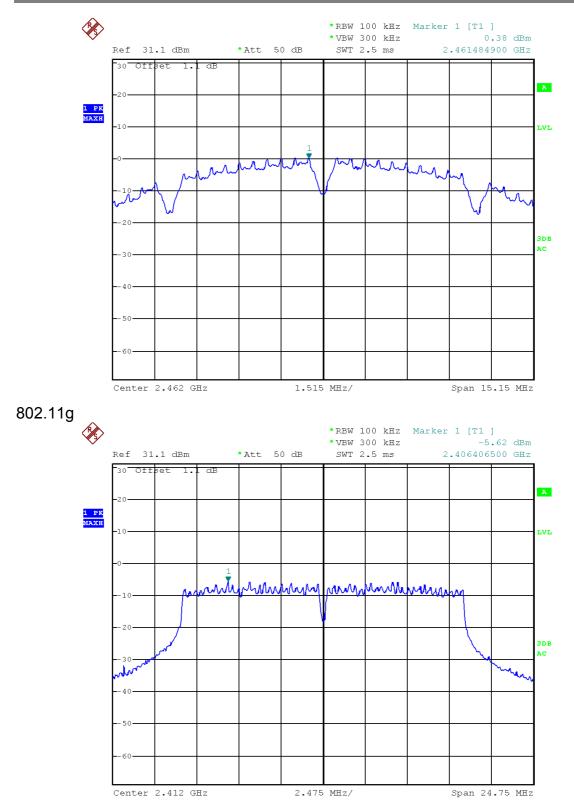
IEEE 802.11n-HT40 (64QAM, 13.5Mbps)		
Frequency (MHz)	Power Density with RBW 100KHz	
2422	-11.72	
2437	-11.39	
2452	-11.20	

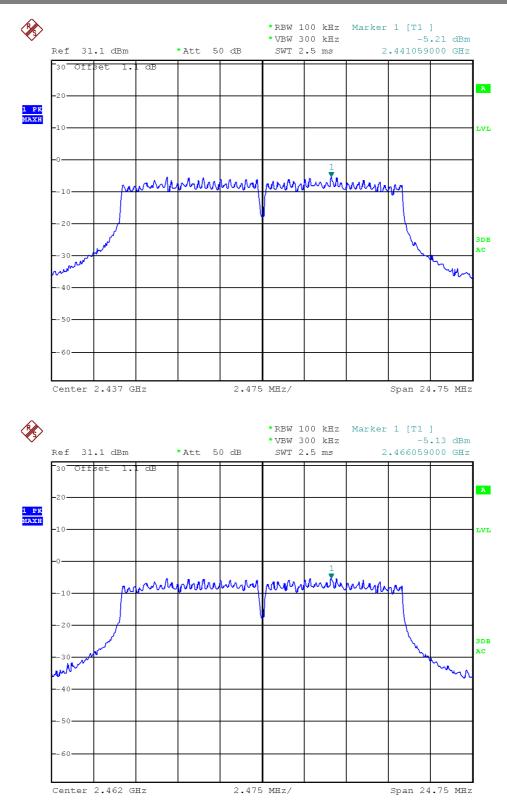
Cable loss: <u>1.1</u> dB External Attenuation: 0 dB

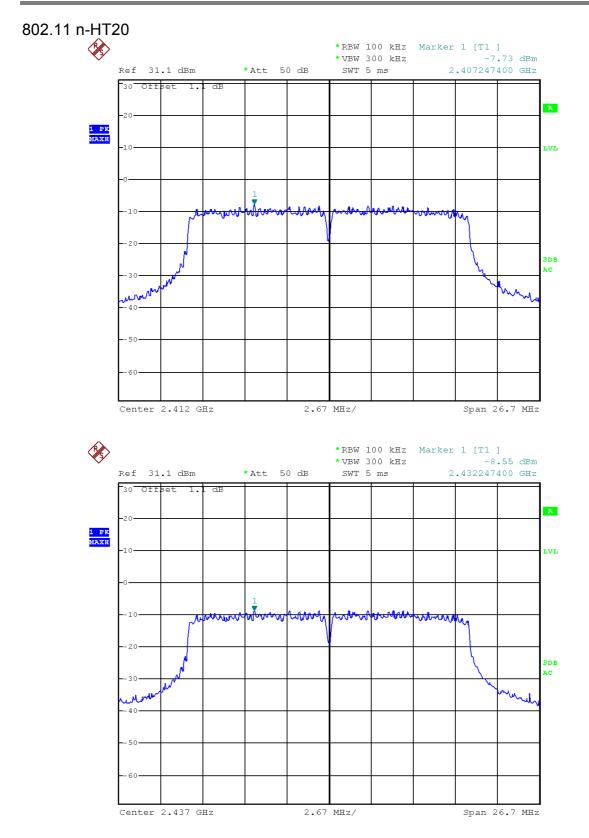
Cable loss, external attenuation has been included in OFFSET function

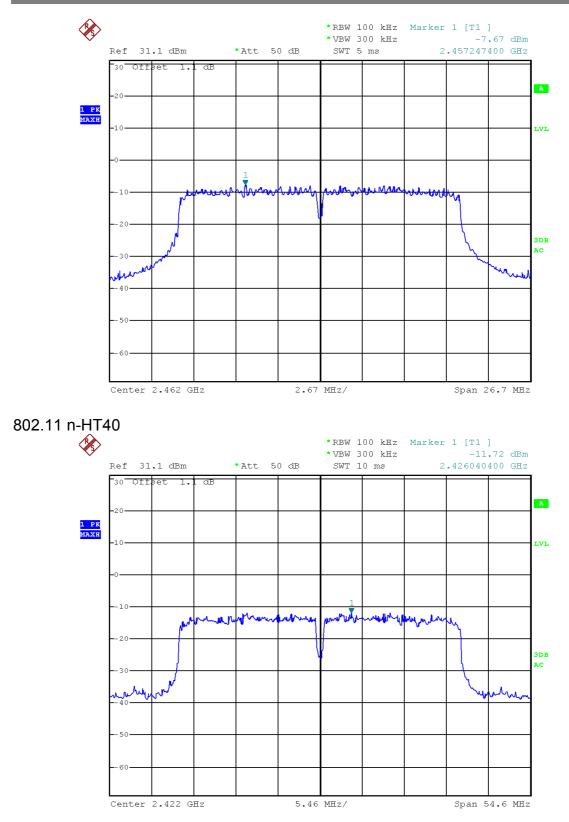
The test plots are attached as below.

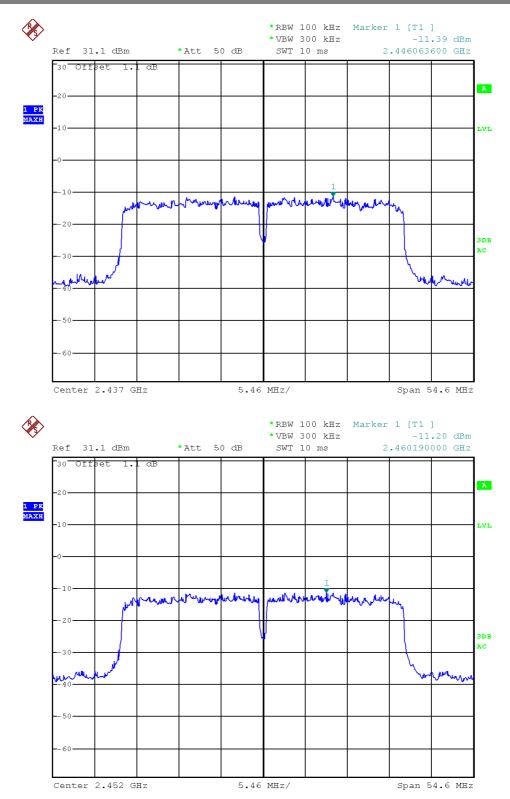












Applicant: TTE Technology, Inc. Model: GE42V1EA Date of Test: July 18, 2013

#### 4.4 Out of Band Conducted Emissions, FCC Rule 15.247(d)

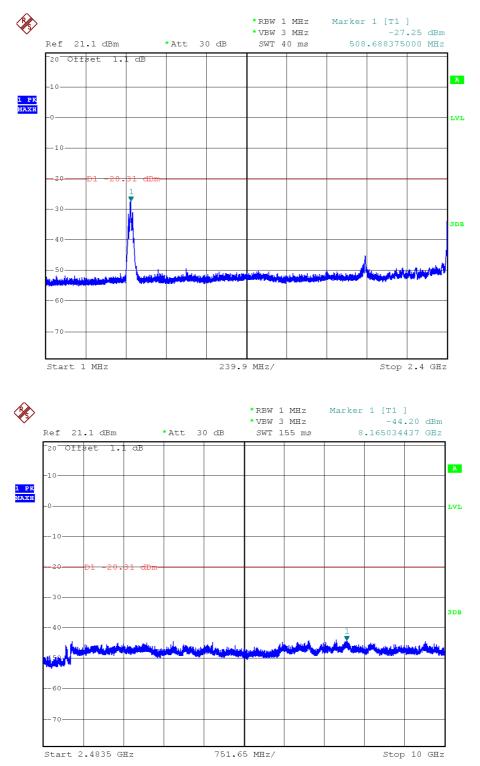
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. The Measurement Procedure was set according to the FCC KDB 558074.

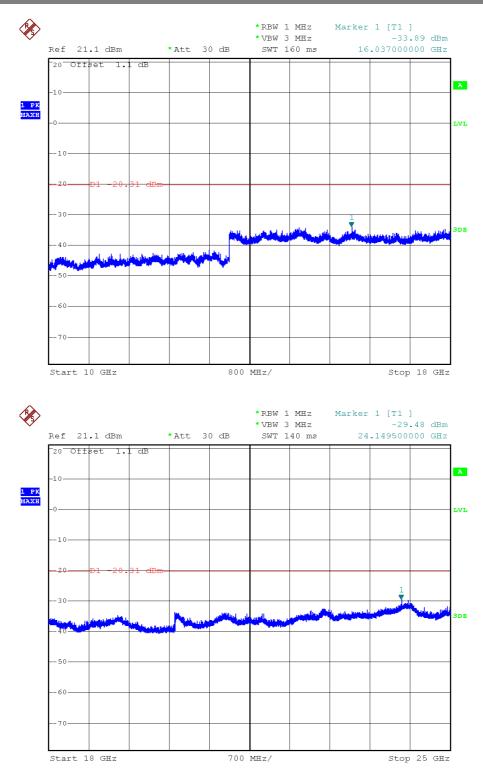
Refer to the attached test plots for out of band conducted emissions data with rate of 1Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n-HT20 and 13.5Mbps for 802.11n-HT40.

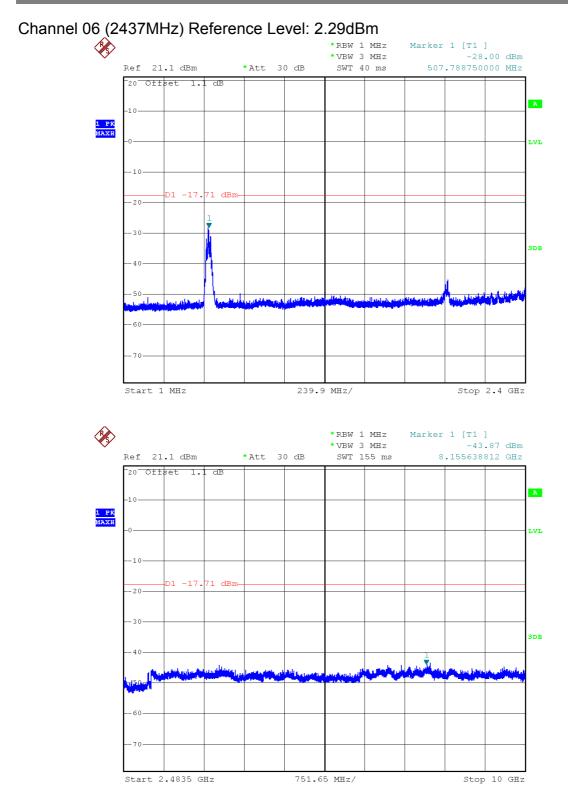
The test plots showed all spurious emission up to the tenth harmonic was measured and they were found to be at least 20 dB below the highest level of the desired power in the passband.

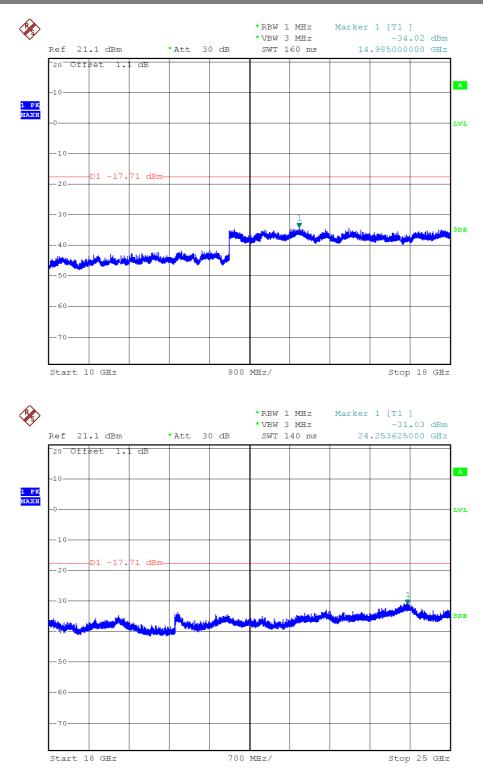
The test plots are attached as below.

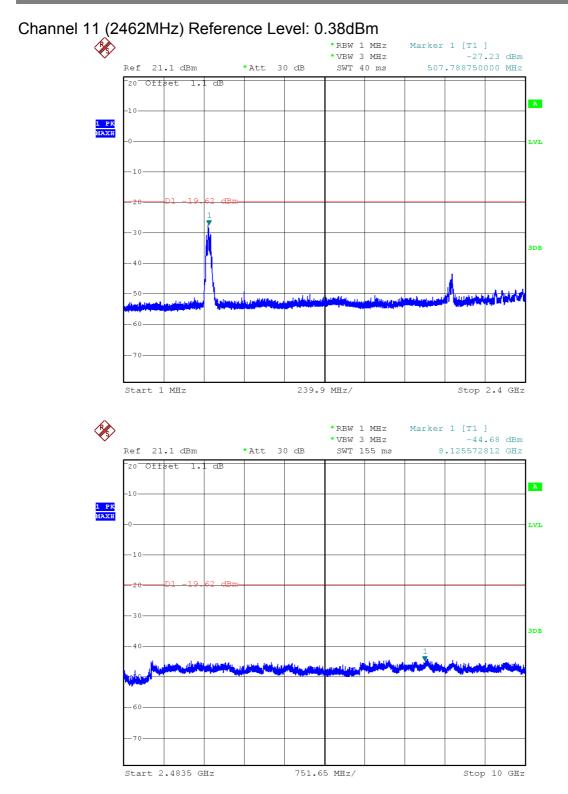


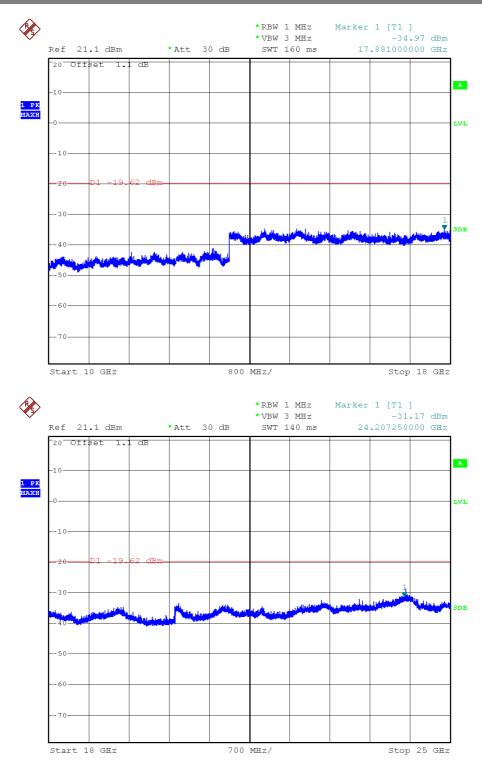


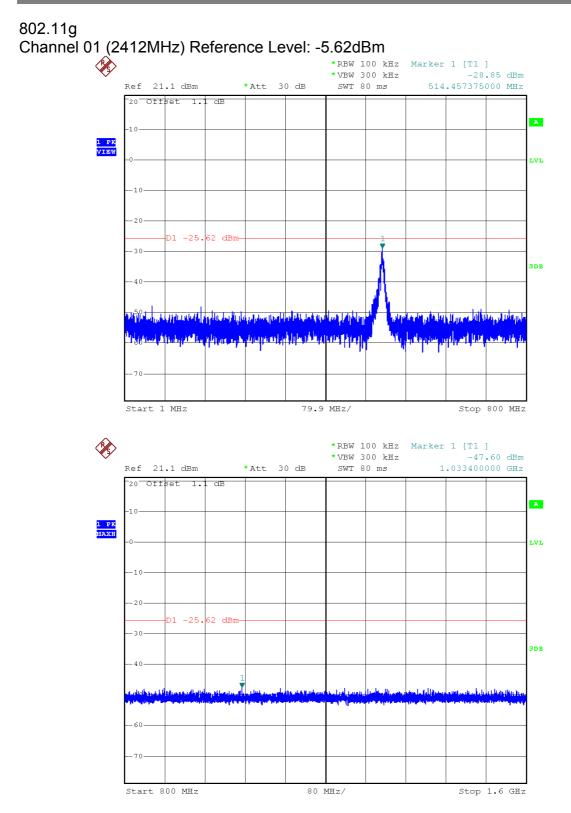


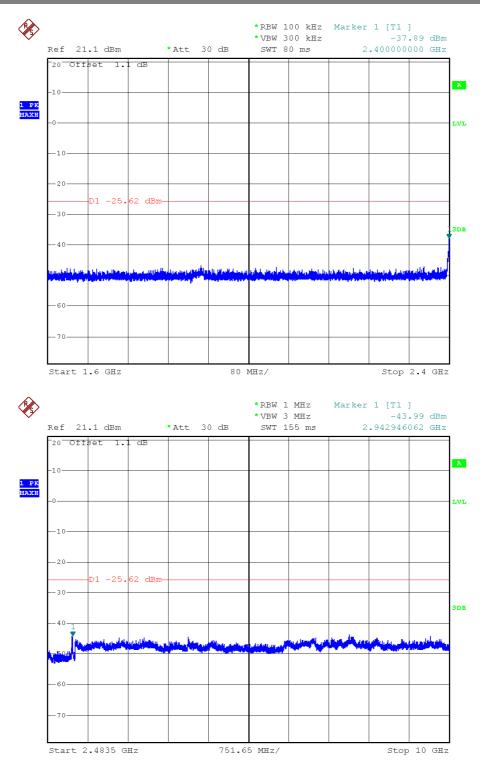


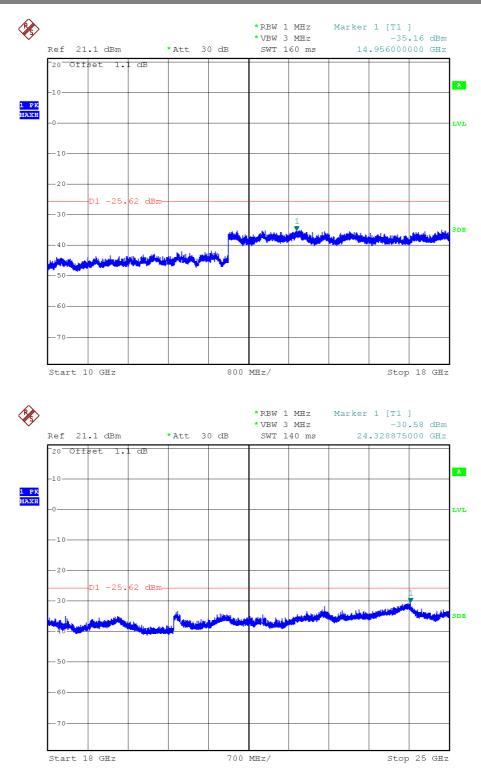


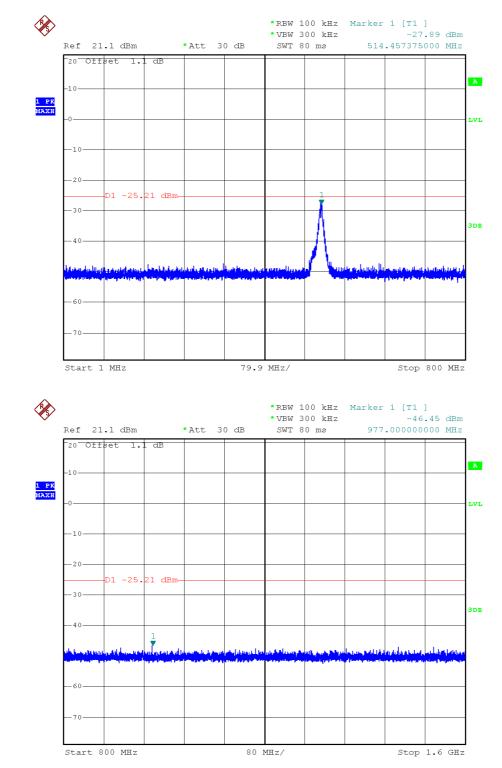




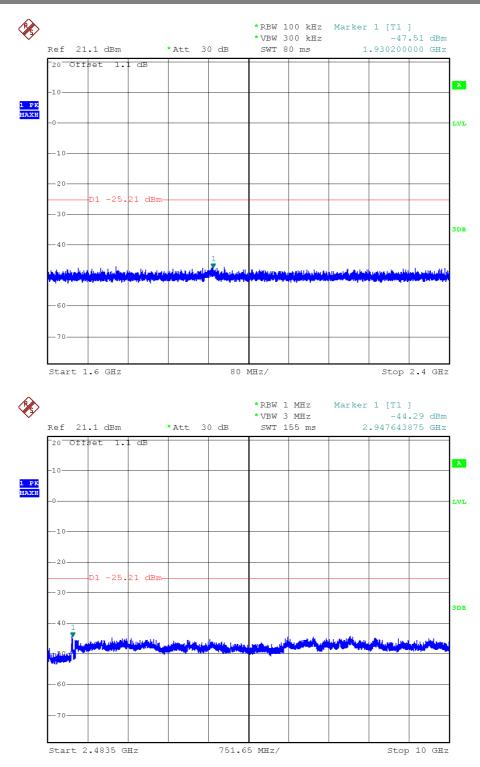


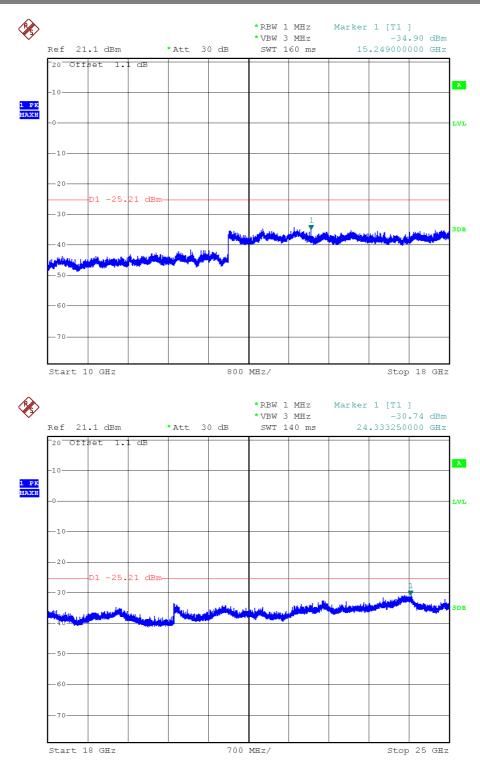


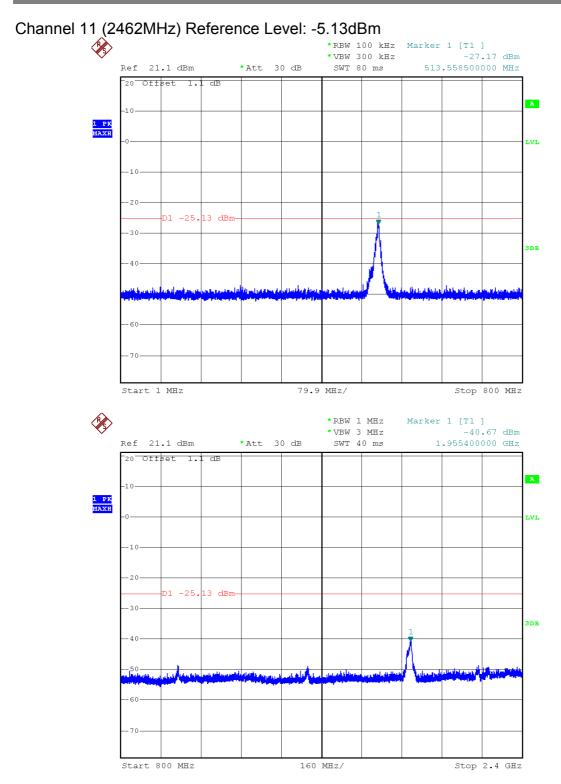


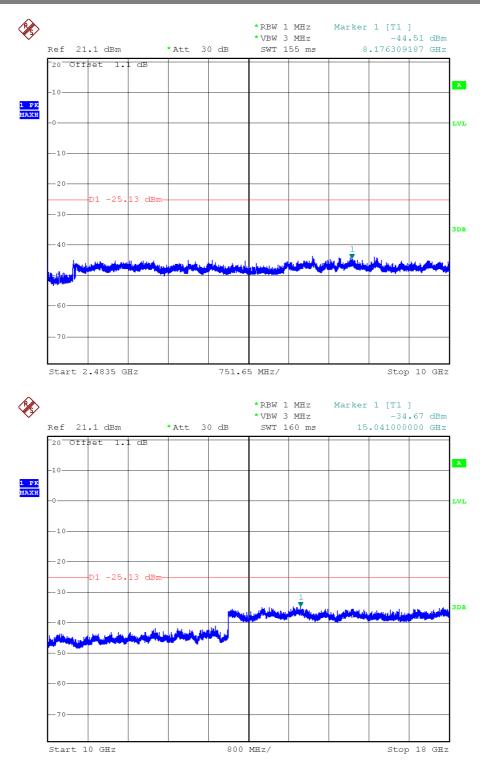


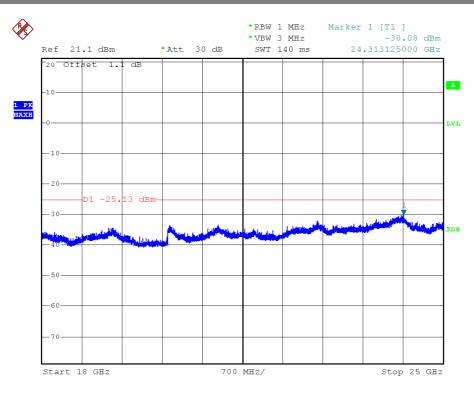
#### Channel 06 (2437MHz) Reference Level: -5.21dBm



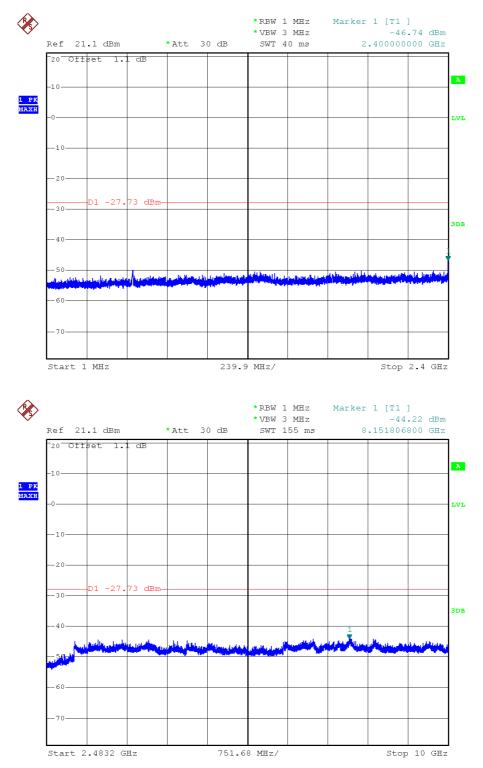


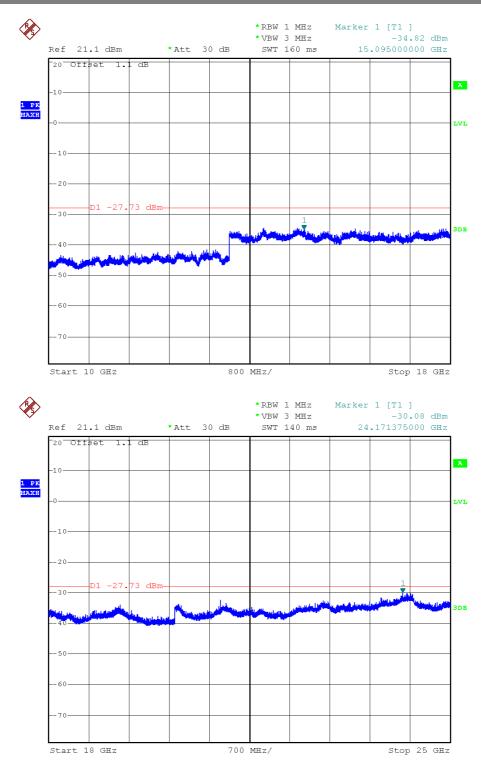


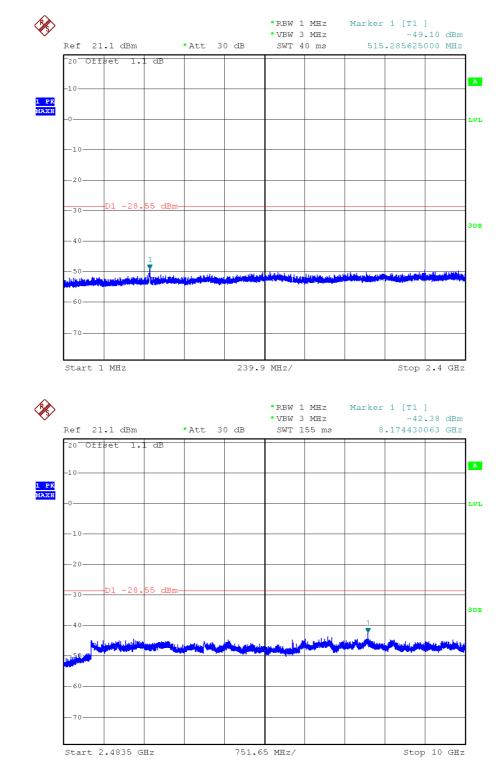




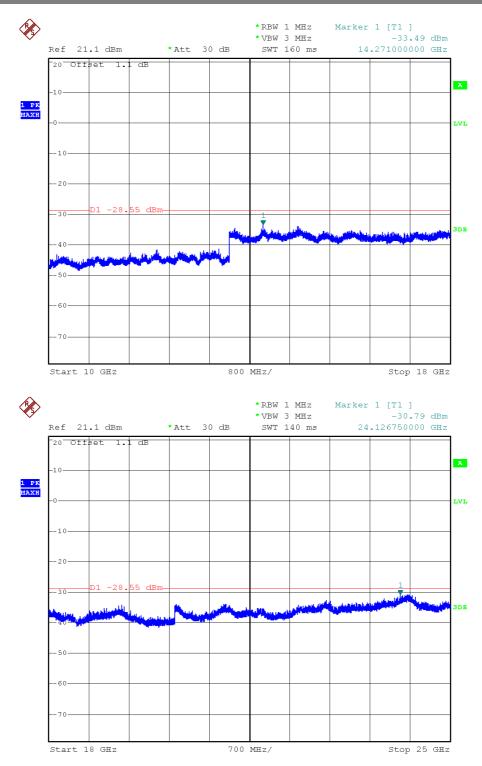
#### 802.11 n-HT20 Channel 01 (2412MHz) Reference Level: -7.73dBm

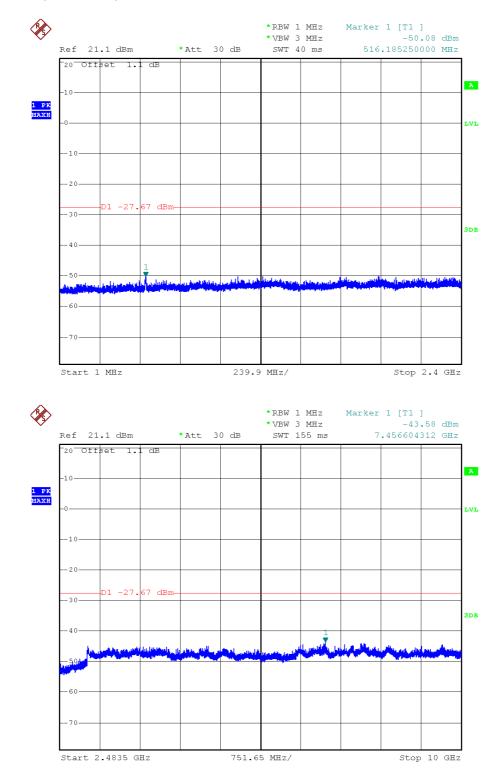




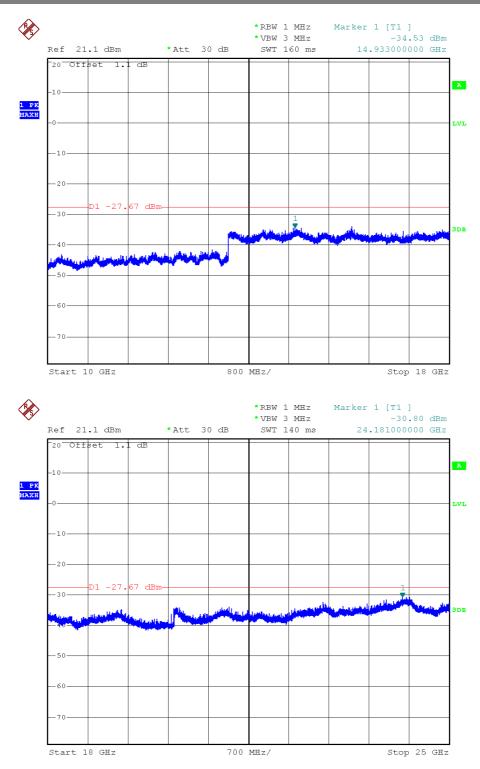


Channel 06 (2437MHz) Reference Level: -8.55dBm

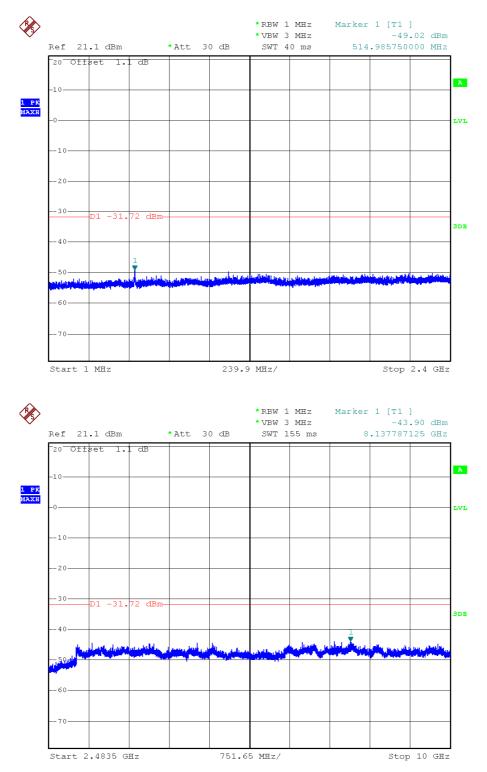


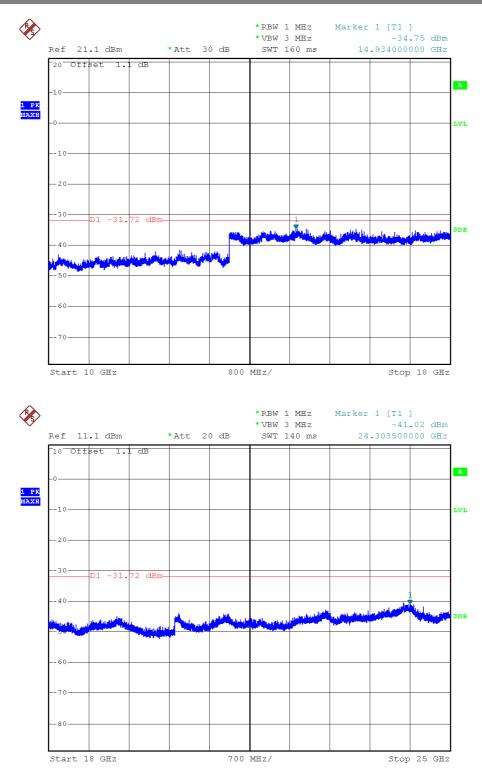


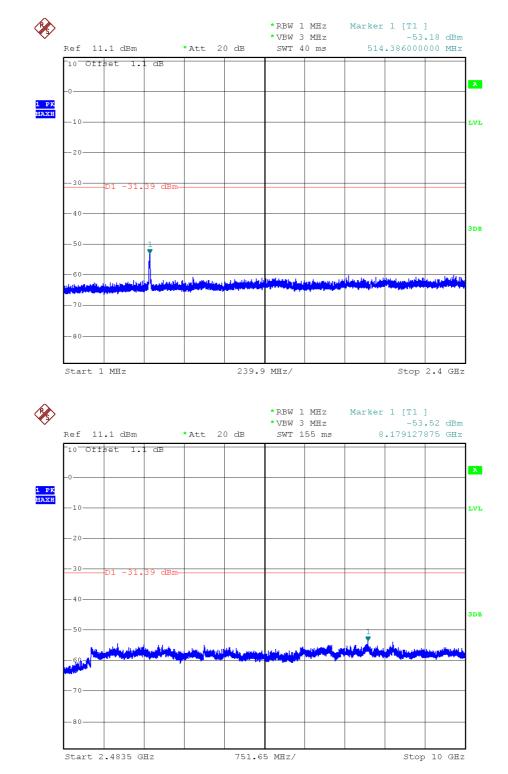
#### Channel 11 (2462MHz) Reference Level: -7.67dBm



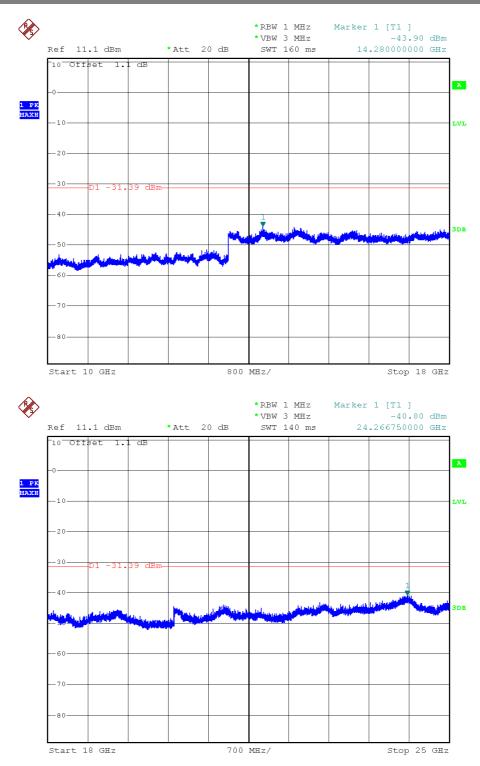
#### 802.11 n-HT40 Channel 03 (2422MHz) Reference Level: -11.72dBm

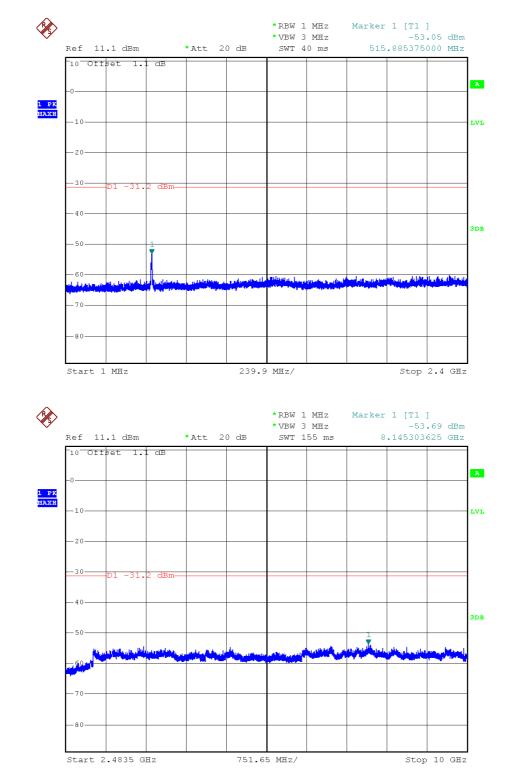




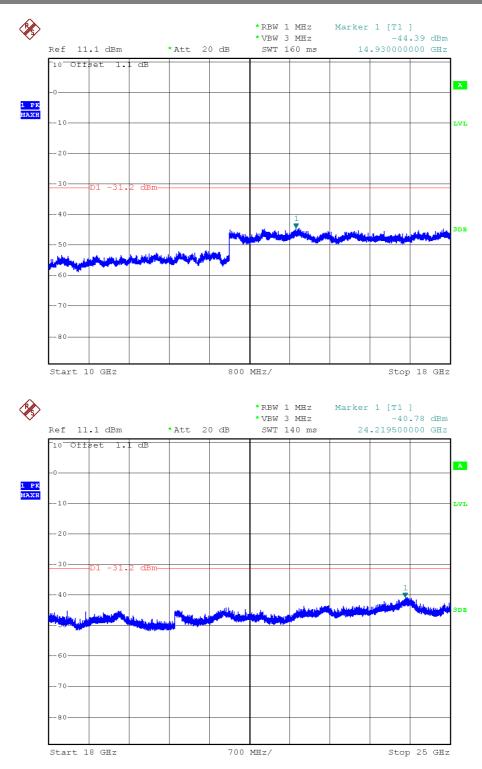


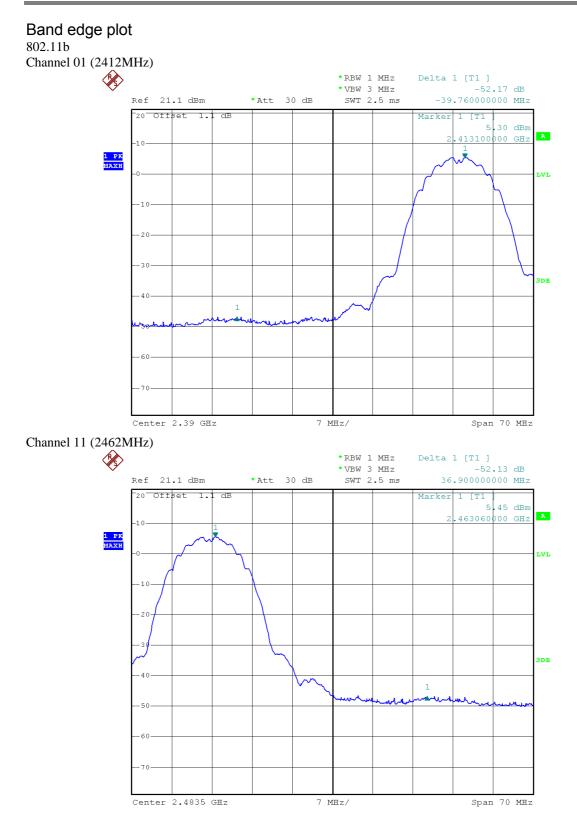
#### Channel 06 (2437MHz) Reference Level: -11.39dBm

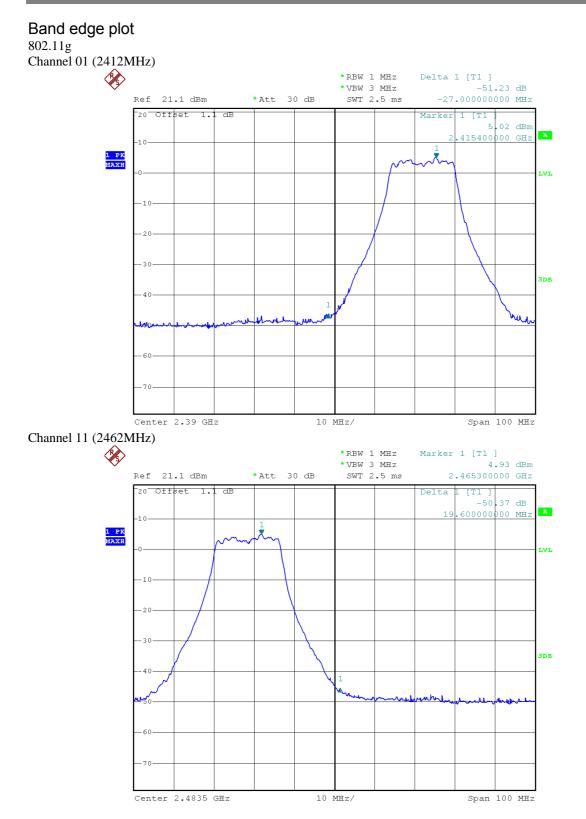


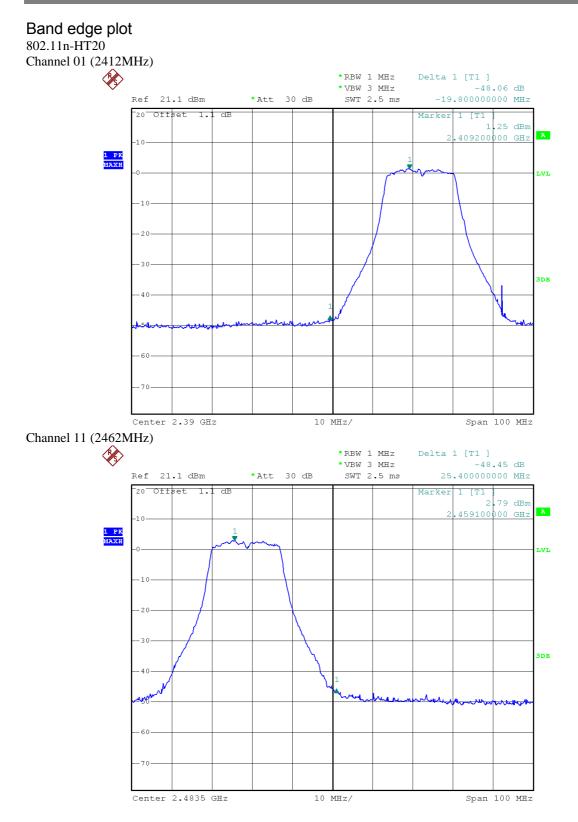


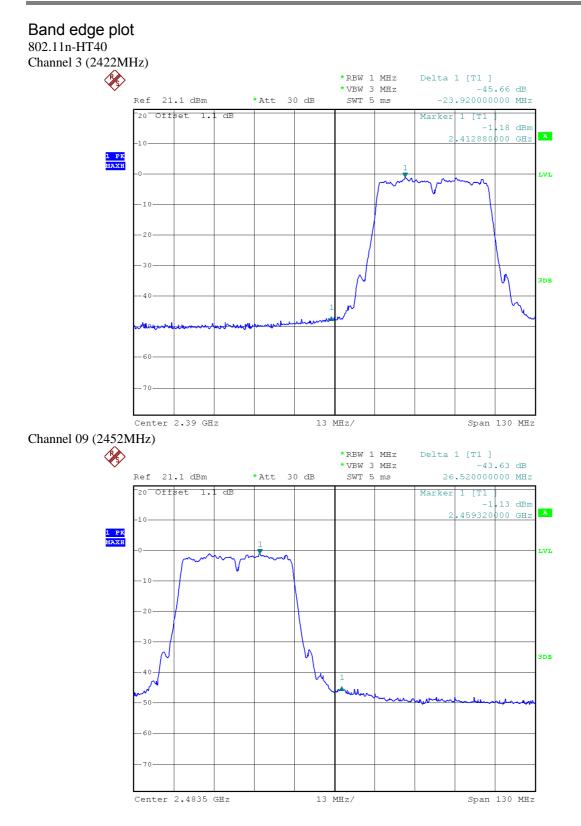
#### Channel 09 (2452MHz) Reference Level: -11.20dBm











Applicant: TTE Technology, Inc. Model: GE42V1EA Date of Test: July 18, 2013

4.5 Out of Band Radiated Emissions (for emissions in 4.4 above that are less than 20dB below carrier), FCC Rule 15.247(d):

For out of band emissions that are close to or that exceed the 20dB attenuation requirement described in the specification, radiated measurements were performed at a 3m separation distance to determine whether these emissions complied with the general radiated emission requirement.

[×] Not required, since all emissions are more than 20dB below fundamental

[ ] See attached data sheet

Applicant: TTE Technology, Inc. Model: GE42V1EA Date of Test: July 18, 2013

4.6 Transmitter Radiated Emissions in Restricted Bands, FCC Rule 15.35(b), (c):

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection unless otherwise specified.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

Applicant: TTE Technology, Inc. Model: GE42V1EA Date of Test: July 18, 2013

4.7 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

FS = RA + AF + CF - AG + PD

Where  $FS = Field Strength in dB\mu V/m$ RA = Receiver Amplitude (including preamplifier) in dB $\mu$ V CF = Cable Attenuation Factor in dB AF = Antenna Factor in dB AG = Amplifier Gain in dB PD = Pulse Desensitization in dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF - AG + PD

Example

Assume a receiver reading of 62.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB. The net field strength for comparison to the appropriate emission limit is 32 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

RA =  $62.0 \text{ dB}\mu\text{V}$ AF = 7.4 dB CF = 1.6 dB AG = 29.0 dB PD = 0 dB FS =  $62 + 7.4 + 1.6 - 29 + 0 = 42 \text{ dB}\mu\text{V/m}$ 

Level in mV/m = Common Antilogarithm [(42 dB $\mu$ V/m)/20] = 125.9  $\mu$ V/m

Applicant: TTE Technology, Inc. Model: GE42V1EA Date of Test: July 18, 2013

4.8 Radiated Spurious Emission

Worst Case Radiated Spurious Emission (802.11b) at 2373.340MHz is passed by 5.6dB margin.

For the electronic filing, the worst case radiated emission configuration photographs are saved with filename: radiated photos.pdf.

Applicant: TTE Technology, Inc.Date of Test: July 18, 2013Model: GE42V1EAWorst Case Operating Mode: Transmit (802.11g Channel 01)

Radiated Emissions										
Polarization	Frequency	Reading	Pre-	Antenna	Net	Limit	Margin			
	(MHz)	(dBµV)	Amp	Factor	at 3m	at 3m	(dB)			
			Gain	(dB)	(dBµV/m)	(dBµV/m)				
			(dB)							
Horizontal	96.440	38.2	20.0	9.1	27.3	43.5	-16.2			
Horizontal	303.055	28.6	20.0	20.8	29.4	46.0	-16.6			
Horizontal	796.300	31.7	20.0	24.0	35.7	46.0	-10.3			
Vertical	35.820	40.2	20.0	9.4	29.6	40.0	-10.4			
Vertical	43.160	42.1	20.0	9.1	31.2	40.0	-8.8			
Vertical	65.405	41.5	20.0	9.0	30.5	40.0	-9.5			

NOTES: 1. Quasi-Peak detector is used except for others stated.

- 2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. All emissions are below the QP limit.

Applicant: TTE Technology, Inc. Model: GE42V1EA Mode: 802.11b (TX-Channel 01) Date of Test: July 18, 2013

Raulated Emissions										
Polarization	Frequency	Reading	Pre-	Antenna	Net	Peak Limit	Margin			
	(MHz)	(dBµV)	Amp	Factor	at 3m	at 3m	(dB)			
			Gain	(dB)	(dBµV/m)	(dBµV/m)				
			(dB)							
Vertical	**2412.000	113.4	36.7	28.5	105.2	-	-			
Vertical	*4824.000	51.1	36.7	34.2	48.6	74.0	-25.4			
Vertical	*7236.000	53.2	36.7	36.9	53.4	74.0	-20.6			
Vertical	*2373.340	61.0	36.2	28.2	53.0	74.0	-21.0			

Polarization	Frequency	Reading	Pre-	Antenna	Net	Average Limit	Margin
	(MHz)	(dBµV)	Amp	Factor	at 3m	at 3m	(dB)
			Gain (dB)	(dB)	(dBµV/m)	(dBµV/m)	
Vertical	**2412.000	108.8	36.7	28.5	100.6	-	-
Vertical	*4824.000	36.9	36.7	34.2	34.4	54.0	-19.6
Vertical	*7236.000	39.7	36.7	36.9	39.9	54.0	-14.1
Vertical	*2373.340	56.4	36.2	28.2	48.4	54.0	-5.6

NOTES: 1. Peak detector Data unless otherwise stated. Above 1000 MHz, RBW=1MHz, VBW=3MHz is used for Peak measurement, RBW=1MHz, VBW=10Hz is used for Average measurement.

- 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.
- \*\* Fundamental emissions were measured for determining band-edge compliance of using delta measurements technique per KDB Publication Number: 913591 and KDB 558074 in the restricted band 2310-2390MHz and only the worst data was reported.

Date of Test: July 18, 2013

Applicant: TTE Technology, Inc. Model: GE42V1EA Mode: 802.11b (TX-Channel 06)

#### **Radiated Emissions**

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Vertical	*4874.000	51.3	36.7	34.6	49.2	74.0	-24.8
Vertical	*7311.000	52.5	36.7	37.1	52.9	74.0	-21.1

Polarization	Frequency (MHz)	Reading (dBµV)	Amp	Antenna Factor	Net at 3m	Average Limit at 3m	Margin (dB)
			Gain (dB)	(dB)	(dBµV/m)	(dBµV/m)	
Vertical	*4874.000	37.1	36.7	34.6	35.0	54.0	-19.0
Vertical	*7311.000	38.3	36.7	37.1	38.7	54.0	-15.3

- NOTES: 1. Peak detector Data unless otherwise stated. Above 1000 MHz, RBW=1MHz, VBW=3MHz is used for Peak measurement, RBW=1MHz, VBW=10Hz is used for Average measurement.
  - 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  - 3. Negative value in the margin column shows emission below limit.
  - 4. Horn antenna used for the emission over 1000MHz.
  - \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: TTE Technology, Inc. Model: GE42V1EA Mode: 802.11b (TX-Channel 11) Date of Test: July 18, 2013

**Radiated Emissions** 

Polarization	Frequency	Reading	Pre-	Antenna	Net	Peak Limit	Margin
	(MHz)	(dBµV)	Amp	Factor	at 3m	at 3m	(dB)
			Gain	(dB)	(dBµV/m)	(dBµV/m)	
			(dB)				
Vertical	**2462.000	112.1	36.7	28.5	103.9	-	-
Vertical	*4924.000	50.4	36.7	34.6	48.3	74.0	-25.7
Vertical	*7386.000	53.4	36.7	37.2	53.9	74.0	-20.1
Vertical	*2499.960	60.0	36.2	28.0	51.8	74.0	-22.2

Polarization	Frequency	Reading	Pre-	Antenna	Net	Average Limit	Margin
	(MHz)	(dBµV)	Amp	Factor	at 3m	at 3m	(dB)
			Gain	(dB)	(dBµV/m)	(dBµV/m)	
			(dB)				
Vertical	**2462.000	107.4	36.7	28.5	99.2	-	-
Vertical	*4924.000	36.0	36.7	34.6	33.9	54.0	-20.1
Vertical	*7386.000	38.5	36.7	37.2	39.0	54.0	-15.0
Vertical	*2499.960	55.3	36.2	28.0	47.1	54.0	-6.9
	Vertical Vertical Vertical	(MHz) Vertical **2462.000 Vertical *4924.000 Vertical *7386.000	(MHz)         (dBµV)           Vertical         **2462.000         107.4           Vertical         *4924.000         36.0           Vertical         *7386.000         38.5	(MHz)         (dBµV)         Amp Gain (dB)           Vertical         **2462.000         107.4         36.7           Vertical         *4924.000         36.0         36.7           Vertical         *7386.000         38.5         36.7	(MHz)         (dBµV)         Amp Gain (dB)         Factor (dB)           Vertical         **2462.000         107.4         36.7         28.5           Vertical         *4924.000         36.0         36.7         34.6           Vertical         *7386.000         38.5         36.7         37.2	(MHz)         (dBμV)         Amp Gain         Factor (dB)         at 3m (dBμV/m)           Vertical         **2462.000         107.4         36.7         28.5         99.2           Vertical         *4924.000         36.0         36.7         34.6         33.9           Vertical         *7386.000         38.5         36.7         37.2         39.0	(MHz)         (dBμV)         Amp Gain (dB)         Factor (dB)         at 3m (dBμV/m)           Vertical         **2462.000         107.4         36.7         28.5         99.2         -           Vertical         *4924.000         36.0         36.7         34.6         33.9         54.0           Vertical         *7386.000         38.5         36.7         37.2         39.0         54.0

NOTES: 1. Peak detector Data unless otherwise stated. Above 1000 MHz, RBW=1MHz, VBW=3MHz is used for Peak measurement, RBW=1MHz, VBW=10Hz is used for Average measurement.

- 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.
- \*\* Fundamental emissions were measured for determining band-edge compliance of using delta measurements technique per KDB Publication Number: 913591 and KDB 558074 in the restricted band 2483.5-2500MHz and only the worst data was reported.

Applicant: TTE Technology, Inc. Model: GE42V1EA Mode: 802.11g (TX-Channel 01) Date of Test: July 18, 2013

**Radiated Emissions** Reading Frequency Antenna Net Peak Limit Polarization Pre-Margin (MHz) (dBµV) Amp Factor at 3m at 3m (dB) Gain (dB)  $(dB\mu V/m)$  $(dB\mu V/m)$ (dB) \*\*2412.000 Vertical 115.5 36.7 28.5 107.3 \_ Vertical \*4824.000 51.7 34.2 49.2 74.0 -24.8 36.7 \*7236.000 52.9 36.7 36.9 53.1 74.0 -20.9 Vertical \*2388.400 64.5 36.2 27.8 56.1 74.0 -17.9 Vertical

Polarization	Frequency	Reading	Pre-	Antenna	Net	Average Limit	Margin
	(MHz)	(dBµV)	Amp	Factor	at 3m	at 3m	(dB)
			Gain	(dB)	(dBµV/m)	(dBµV/m)	
			(dB)				
Vertical	**2412.000	103.4	36.7	28.5	95.2	-	-
Vertical	*4824.000	36.5	36.7	34.2	34.0	54.0	-20.0
Vertical	*7236.000	38.2	36.7	36.9	38.4	54.0	-15.6
Vertical	*2388.400	52.4	36.2	27.8	44.0	54.0	-10.0

NOTES: 1. Peak detector Data unless otherwise stated. Above 1000 MHz, RBW=1MHz, VBW=3MHz is used for Peak measurement, RBW=1MHz, VBW=10Hz is used for Average measurement.

- 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.
- \*\* Fundamental emissions were measured for determining band-edge compliance of using delta measurements technique per KDB Publication Number: 913591 and KDB 558074 in the restricted band 2483.5-2500MHz and only the worst data was reported.

Date of Test: July 18, 2013

Applicant: TTE Technology, Inc. Model: GE42V1EA Mode: 802.11g (TX-Channel 06)

#### **Radiated Emissions**

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Vertical	*4874.000	50.9	36.7	34.6	48.8	74.0	-25.2
Vertical	*7311.000	53.4	36.7	37.1	53.8	74.0	-20.2

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Vertical	*4874.000	36.3	36.7	34.6	34.2	54.0	-19.8
Vertical	*7311.000	38.0	36.7	37.1	38.4	54.0	-15.6

- NOTES: 1. Peak detector Data unless otherwise stated. Above 1000 MHz, RBW=1MHz, VBW=3MHz is used for Peak measurement, RBW=1MHz, VBW=10Hz is used for Average measurement.
  - 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  - 3. Negative value in the margin column shows emission below limit.
  - 4. Horn antenna used for the emission over 1000MHz.
  - \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: TTE Technology, Inc. Model: GE42V1EA Mode: 802.11g (TX-Channel 11) Date of Test: July 18, 2013

**Radiated Emissions** Reading Frequency Antenna Net Peak Limit Margin Polarization Pre-(MHz) (dBµV) Amp Factor at 3m at 3m (dB) Gain (dB)  $(dB\mu V/m)$  $(dB\mu V/m)$ (dB) \*\*2462.000 Vertical 111.6 36.7 28.5 103.4 \_ Vertical \*4924.000 50.6 34.6 48.5 74.0 -25.5 36.7 \*7386.000 36.7 37.2 54.1 74.0 -19.9 Vertical 53.6 \*2484.900 61.2 36.2 28.0 53.0 74.0 -21.0 Vertical

Polarization	Frequency	Reading	Pre-	Antenna	Net	Average Limit	Margin
	(MHz)	(dBµV)	Amp	Factor	at 3m	at 3m	(dB)
			Gain	(dB)	(dBµV/m)	(dBµV/m)	
			(dB)				
Vertical	**2462.000	100.2	36.7	28.5	92.0	-	-
Vertical	*4924.000	36.0	36.7	34.6	33.9	54.0	-20.1
Vertical	*7386.000	38.0	36.7	37.2	38.5	54.0	-15.5
Vertical	*2484.900	49.8	36.2	28.0	41.6	54.0	-12.4

NOTES: 1. Peak detector Data unless otherwise stated. Above 1000 MHz, RBW=1MHz, VBW=3MHz is used for Peak measurement, RBW=1MHz, VBW=10Hz is used for Average measurement.

- 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.
- \*\* Fundamental emissions were measured for determining band-edge compliance of using delta measurements technique per KDB Publication Number: 913591 and KDB 558074 in the restricted band 2483.5-2500MHz and only the worst data was reported.

Date of Test: July 18, 2013

Applicant: TTE Technology, Inc. Model: GE42V1EA Mode: 802.11 n-HT20 (TX-Channel 01)

Radiated Emissions

Polarization	Frequency	Reading	Pre-	Antenna	Net	Peak Limit	Margin
	(MHz)	(dBµV)	Amp	Factor	at 3m	at 3m	(dB)
			Gain	(dB)	(dBµV/m)	(dBµV/m)	
			(dB)	. ,			
Vertical	**2412.000	109.5	36.7	28.5	101.3	-	-
Vertical	*4824.000	51.3	36.7	34.2	48.8	74.0	-25.2
Vertical	*7236.000	53.5	36.7	36.9	53.7	74.0	-20.3
Vertical	*2389.400	61.6	36.2	27.8	53.2	74.0	-20.8

Polarization	Frequency	Reading	Pre-	Antenna	Net	Average Limit	Margin
	(MHz)	(dBµV)	Amp	Factor	at 3m	at 3m	(dB)
			Gain	(dB)	(dBµV/m)	(dBµV/m)	
			(dB)	, ,	· · /	/	
Vertical	**2412.000	98.6	36.7	28.5	90.4	-	-
Vertical	*4824.000	36.7	36.7	34.2	34.2	54.0	-19.8
Vertical	*7236.000	37.8	36.7	36.9	38.0	54.0	-16.0
Vertical	*2389.400	50.7	36.2	27.8	42.3	54.0	-11.7

NOTES: 1. Peak detector Data unless otherwise stated. Above 1000 MHz, RBW=1MHz, VBW=3MHz is used for Peak measurement, RBW=1MHz, VBW=10Hz is used for Average measurement.

- 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

\*\* Fundamental emissions were measured for determining band-edge compliance of using delta measurements technique per KDB Publication Number: 913591 and KDB 558074 in the restricted band 2483.5-2500MHz and only the worst data was reported.

Date of Test: July 18, 2013

Applicant: TTE Technology, Inc. Model: GE42V1EA Mode: 802.11 n-HT20 (TX-Channel 06)

#### **Radiated Emissions**

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Vertical	*4874.000	50.8	36.7	34.2	48.3	74.0	-25.7
Vertical	*7311.000	53.6	36.7	37.1	54.0	74.0	-20.0

Polarization	Frequency	Reading	Pre-	Antenna	Net	Average Limit	Margin
	(MHz)	(dBµV)	Amp	Factor	at 3m	at 3m	(dB)
			Gain	(dB)	(dBµV/m)	(dBµV/m)	
			(dB)				
Vertical	*4874.000	36.8	36.7	34.2	34.3	54.0	-19.7
Vertical	*7311.000	37.8	36.7	37.1	38.2	54.0	-15.8

- NOTES: 1. Peak detector Data unless otherwise stated. Above 1000 MHz, RBW=1MHz, VBW=3MHz is used for Peak measurement, RBW=1MHz, VBW=10Hz is used for Average measurement.
  - 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  - 3. Negative value in the margin column shows emission below limit.
  - 4. Horn antenna used for the emission over 1000MHz.
  - \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: TTE Technology, Inc. Model: GE42V1EA Mode: 802.11 n-HT20 (TX-Channel 11) Date of Test: July 18, 2013

Radiated Emissions

Polarization	Frequency	Reading	Pre-	Antenna	Net	Peak Limit	Margin
	(MHz)	(dBµV)	Amp	Factor	at 3m	at 3m	(dB)
			Gain	(dB)	(dBµV/m)	(dBµV/m)	
			(dB)				
Vertical	**2462.000	108.9	36.7	28.5	100.7	-	-
Vertical	*4924.000	50.0	36.7	34.6	47.9	74.0	-26.1
Vertical	*7386.000	53.5	36.7	37.2	54.0	74.0	-20.0
Vertical	*2484.500	60.6	36.2	27.8	52.2	74.0	-21.8

Polarization	Frequency	Reading	Pre-	Antenna	Net	Average Limit	Margin
	(MHz)	(dBµV)	Amp	Factor	at 3m	at 3m	(dB)
			Gain	(dB)	(dBµV/m)	(dBµV/m)	
			(dB)		,	,	
Vertical	**2462.000	97.6	36.7	28.5	89.4	-	-
Vertical	*4924.000	35.8	36.7	34.6	33.7	54.0	-20.3
Vertical	*7386.000	37.9	36.7	37.2	38.4	54.0	-15.6
Vertical	*2484.500	49.3	36.2	27.8	40.9	54.0	-13.1

NOTES: 1. Peak detector Data unless otherwise stated. Above 1000 MHz, RBW=1MHz, VBW=3MHz is used for Peak measurement, RBW=1MHz, VBW=10Hz is used for Average measurement.

- 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.
- \*\* Fundamental emissions were measured for determining band-edge compliance of using delta measurements technique per KDB Publication Number: 913591 and KDB 558074 in the restricted band 2483.5-2500MHz and only the worst data was reported.

Applicant: TTE Technology, Inc. Model: GE42V1EA Mode: 802.11 n-HT40 (TX-Channel 03) Date of Test: July 18, 2013

**Radiated Emissions** Frequency Reading Pre-Antenna Net Peak Limit Margin Polarization (MHz) (dBµV) Amp Factor at 3m at 3m (dB) Gain (dB)  $(dB\mu V/m)$  $(dB\mu V/m)$ (dB) \*\*2422.000 Vertical 106.6 36.7 28.5 98.4 \_ Vertical -25.2 \*4844.000 51.3 34.2 48.8 74.0 36.7 37.1 \*7266.000 36.7 53.3 74.0 -20.7 Vertical 52.9 \*2388.960 61.2 36.2 27.7 52.7 74.0 -21.3 Vertical

Polarization	Frequency	Reading	Pre-	Antenna	Net	Average Limit	Margin
	(MHz)	(dBµV)	Amp	Factor	at 3m	at 3m	(dB)
			Gain	(dB)	(dBµV/m)	(dBµV/m)	
			(dB)				
Vertical	**2422.000	95.1	36.7	28.5	86.9	-	-
Vertical	*4844.000	36.5	36.7	34.2	34.0	54.0	-20.0
Vertical	*7266.000	37.3	36.7	37.1	37.7	54.0	-16.3
Vertical	*2388.960	49.7	36.2	27.7	41.2	54.0	-12.8

NOTES: 1. Peak detector Data unless otherwise stated. Above 1000 MHz, RBW=1MHz, VBW=3MHz is used for Peak measurement, RBW=1MHz, VBW=10Hz is used for Average measurement.

- 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

\*\* Fundamental emissions were measured for determining band-edge compliance of using delta measurements technique per KDB Publication Number: 913591 and KDB 558074 in the restricted band 2483.5-2500MHz and only the worst data was reported.

Applicant: TTE Technology, Inc. Model: GE42V1EA Mode: 802.11 n-HT40 (TX-Channel 06) Date of Test: July 18, 2013

#### **Radiated Emissions**

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Vertical	*4874.000	50.9	36.7	34.2	48.4	74.0	-25.6
Vertical	*7311.000	52.7	36.7	37.1	53.1	74.0	-20.9

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Vertical	*4874.000	37.1	36.7	34.2	34.6	54.0	-19.4
Vertical	*7311.000	38.0	36.7	37.1	38.4	54.0	-15.6

- NOTES: 1. Peak detector Data unless otherwise stated. Above 1000 MHz, RBW=1MHz, VBW=3MHz is used for Peak measurement, RBW=1MHz, VBW=10Hz is used for Average measurement.
  - 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  - 3. Negative value in the margin column shows emission below limit.
  - 4. Horn antenna used for the emission over 1000MHz.
  - \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: TTE Technology, Inc. Model: GE42V1EA Mode: 802.11 n-HT40 (TX-Channel 09) Date of Test: July 18, 2013

**Radiated Emissions** Frequency Reading Pre-Antenna Net Peak Limit Polarization Margin (MHz) (dBµV) Amp Factor at 3m at 3m (dB) Gain (dB)  $(dB\mu V/m)$  $(dB\mu V/m)$ (dB) \*\*2452.000 Vertical 107.1 36.7 28.5 98.9 \_ \*4904.000 Vertical 50.3 34.6 48.2 74.0 -25.8 36.7 \*7356.000 36.7 37.0 53.8 74.0 -20.2 Vertical 53.5 \*2485.840 63.5 36.2 28.0 55.3 74.0 -18.7 Vertical

Polarization	Frequency	Reading	Pre-	Antenna	Net	Average Limit	Margin
	(MHz)	(dBµV)	Amp	Factor	at 3m	at 3m	(dB)
			Gain	(dB)	(dBµV/m)	(dBµV/m)	
			(dB)	. ,	,	,	
Vertical	**2452.000	95.1	36.7	28.5	86.9	-	-
Vertical	*4904.000	36.1	36.7	34.6	34.0	54.0	-20.0
Vertical	*7356.000	38.3	36.7	37.0	38.6	54.0	-15.4
Vertical	*2485.840	51.5	36.2	28.0	43.3	54.0	-10.7

NOTES: 1. Peak detector Data unless otherwise stated. Above 1000 MHz, RBW=1MHz, VBW=3MHz is used for Peak measurement, RBW=1MHz, VBW=10Hz is used for Average measurement.

- 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.
- \*\* Fundamental emissions were measured for determining band-edge compliance of using delta measurements technique per KDB Publication Number: 913591 and KDB 558074 in the restricted band 2483.5-2500MHz and only the worst data was reported.

4.9 Conducted Emission

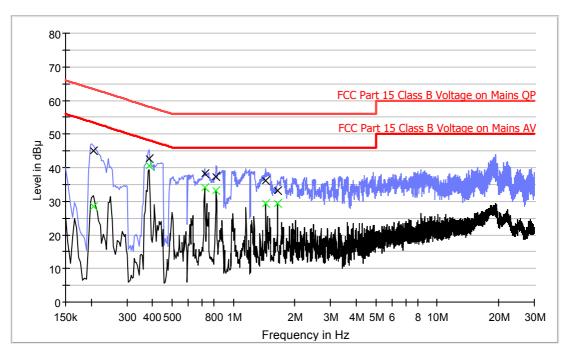
Worst Case Conducted Configuration At

#### 0.386 MHz

Judgement: Passed by 7.5 dB margin

For electronic filing, the worst case conducted emission configuration photograph is saved with filename: conducted photos.pdf.

Applicant: TTE Technology, Inc. Model: GE42V1EA Worst Case Operating Mode: WiFi link Line: Live **Conducted Emission Test - FCC**  Date of Test: July 18, 2013



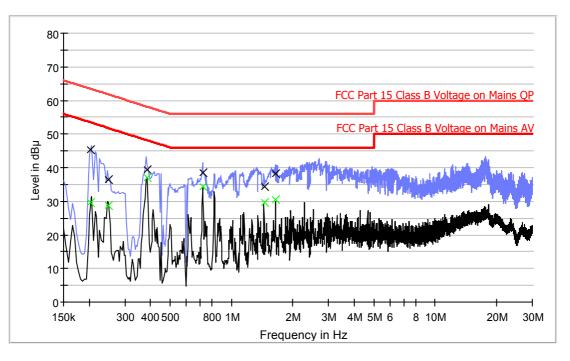
### **Result Table QP**

Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.206	44.9	L1	9.6	18.5	63.4
0.386	42.8	L1	9.6	15.3	58.1
0.722	38.3	L1	9.7	17.7	56.0
0.820	37.2	L1	9.7	18.8	56.0
1.442	36.1	L1	9.7	19.9	56.0
1.646	33.3	L1	9.7	22.7	56.0

# **Result Table AV**

Frequency	Average	Line	Corr.	Margin	Limit
(MHz)	(dB µ V)		(dB)	(dB)	(dB µ V)
0.206	28.5	L1	9.6	24.9	53.4
0.386	40.6	L1	9.6	7.5	48.1
0.722	34.0	L1	9.7	12.0	46.0
0.820	33.2	L1	9.7	12.8	46.0
1.442	29.3	L1	9.7	16.7	46.0
1.646	29.3	L1	9.7	16.7	46.0

Applicant: TTE Technology, Inc. Model: GE42V1EA Worst Case Operating Mode: WiFi link Line: Neutral **Conducted Emission Test - FCC**  Date of Test: July 18, 2013



# **Result Table QP**

Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.204	45.3	N	9.6	18.1	63.4
0.250	36.4	N	9.6	25.4	61.8
0.386	39.3	N	9.6	18.8	58.1
0.724	38.4	N	9.7	17.6	56.0
1.448	34.3	N	9.8	21.7	56.0
1.644	38.2	N	9.8	17.8	56.0

#### **Result Table AV**

Frequency	Average	Line	Corr.	Margin	Limit
(MHz)	(dB µ V)		(dB)	(dB)	(dB µ V)
0.204	29.6	N	9.6	23.8	53.4
0.250	28.7	N	9.6	23.1	51.8
0.386	36.9	N	9.6	11.2	48.1
0.724	34.5	N	9.7	11.5	46.0
1.448	29.6	N	9.8	16.4	46.0
1.644	30.5	N	9.8	15.5	46.0

Applicant: TTE Technology, Inc. Model: GE42V1EA Date of Test: July 18, 2013

- 4.10 Radiated Emissions from Digital Section of Transceiver, FCC Ref: 15.109
- [ ] Not required No digital part
- [ ] Test results are attached
- [x] Included in the separated report.

Applicant: TTE Technology, Inc. Model: GE42V1EA Date of Test: July 18, 2013

4.11 Transmitter Duty Cycle Calculation and Measurements, FCC Rule 15.35(b), (c)

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEP function on the analyzer was set to ZERO SPAN. The Transmitter ON time was determined from the resultant time-amplitude display:

	See attached spectrum analyzer chart (s) for Transmitter timing
	See Transmitter timing diagram provided by manufacturer
Х	Not applicable, duty cycle was not used.

# **EXHIBIT 5**

# **EQUIPMENT PHOTOGRAPHS**

#### 5.0 Equipment Photographs

For electronic filing, the photographs are saved with filename: external photos.doc & internal photos.pdf.

## **EXHIBIT 6**

# PRODUCT LABELLING

#### 6.0 Product Labeling

For electronic filing, the FCC ID label artwork and location is saved with filename: label.pdf.

# EXHIBIT 7

# **TECHNICAL SPECIFICATIONS**

#### 7.0 Technical Specifications

For electronic filing, the block diagram and circuit diagram are saved with filename: block.pdf and circuit.pdf respectively.

# **EXHIBIT 8**

# **INSTRUCTION MANUAL**

#### 8.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

# **EXHIBIT 9**

# **CONFIDENTIALITY REQUEST**

#### 9.0 **Confidentiality Request**

For electronic filing, the confidentiality request of the tested EUT is saved with filename: request.pdf.

# **EXHIBIT 10**

# **MISCELLANEOUS INFORMATION**

#### 10.0 Discussion of Pulse Desensitization

The determination of pulse desensitivity was made in accordance with Hewlett Packard Application Note 150-2, *Spectrum Analysis ... Pulsed RF.* 

Pulse desensitivity is not applicable for this device since the transmitter transmits the RF signal continuously.

# **EXHIBIT 11**

### **TEST EQUIPMENT LIST**

#### 11.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-03	BiConiLog Antenna	ETS	3142C	00078828	29-Jun-13	29-Jun-14
SZ185-01	EMI Receiver	R&S	ESCI	100547	12-Mar-13	12-Mar-14
SZ061-08	Horn Antenna	ETS	3115	00092346	03-Nov-12	03-Nov-13
SZ061-07	Horn Antenna	ETS	3160-09	00083067	16-Feb-12	16-Aug-13
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	13-May-13	13-May-14
SZ056-03	Spectrum Analyzer	R&S	FSP 30	101148	12-Mar-13	12-Mar-14
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	12-Mar-13	12-Mar-14
SZ182-02	RF Power Meter	Anritsu	ML2496A	1302005	28-Feb-13	28-Feb-14
SZ182-02- 01	Pulse Power Sensor	Anritsu	MA2411B	1207429	28-Feb-13	28-Feb-14
SZ188-01	Anechoic Chamber	ETS	RFD-F/A- 100	4102	02-Mar-13	02-Mar-14
SZ062-02	RF Cable	RADIALL	RG 213U		26-Feb-13	26-Aug-13
SZ062-05	RF Cable	RADIALL	0.04- 26.5GHz		22-Apr-13	22-Oct-13
SZ062-12	RF Cable	RADIALL	0.04- 26.5GHz		22-Apr-13	22-Oct-13
SZ067-04	Notch Filter	Micro-Tronics	BRM5070 2-02		21-May-13	21-May-14
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	05-Nov-12	05-Nov-13
SZ187-01	Two-Line V- Network	R&S	ENV216	100072	05-Nov-12	05-Nov-13
SZ187-02	Two-Line V- Network	R&S	ENV216	100073	05-Nov-12	05-Nov-13
SZ188-03	Shielding Room	ETS	RFD-100	4100	10-Sep-12	10-Sep-13