



ETS Dr.GenZ Taiwan PS Co., Ltd.

FCC Registration No.: 930600

Industry Canada filed test laboratory Reg. No. IC 5679

Accredited Testing Laboratory



A2LA Cert.No.: 2300.01

PTCRB Accredited Type Certification Test House

TEST - REPORT

FCC RULES PART 15 / SUBPART C

FCC ID : TD3-CQS2005001

Test report no.:

W6M20507-5944-C-1

FCC

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1 General Information

1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.

The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.

Furthermore, there is no guarantee that a test sample which has Passed all the relevant tests conforms to a specification.

Neither is there any guarantee that such a test sample will interwork with other genuinely open systems.

The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that its performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in 1.5.

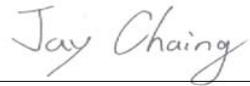
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Tester:

19. 10.2005

Jay Chaing



Date

ETS-Lab.

Name

Signature

Technical responsibility for area of testing:

19. 10.2005

Steven Chuang



Date

ETS

Name

Signature

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1.2 Testing laboratory

1.2.1 Location

OATS

No.5-1, Shuang Sing Village,
LiShuei Rd., Wanli Township,
Taipei County 207, Taiwan (R.O.C.)

Company

ETS DR. GENZ TAIWAN PS CO., LTD.
6F, NO. 58, LANE 188, RUEY-KUANG RD.
NEIHU, TAIPEI 114, TAIWAN R.O.C.

Tel : 886-2-66068877

Fax : 886-2-66068879

1.2.2 Details of accreditation status

Accredited testing laboratory

A2LA-registration number: 2300.01

FCC filed test laboratory Reg. No. 930600

Industry Canada filed test laboratory Reg. No. IC 5679

PTCRB Accredited Type Certification Test House

Test location, where different from ETS:

Name: ./.
Street: ./.
Town: ./.
Country: ./.
Telephone: ./.
Fax: ./.

1.3 Details of approval holder

Name : TAI Electrical Products Inc.
Street : 2F, 27, Alley 49, Lane 118, Sec 2,
Min Tsu Rd., Ping Chang City
Town : Taoyuan
Country : Taiwan, R.O.C.
Telephone : +886-3-4203-622~3
Fax : +886-3-4200-486~7
Contact : Mr. George Chang
Telephone : +886-3-4203-622~3

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1.4 Application details

Date of receipt of application : 01.06.2005
Date of receipt of test item : 03.08.2005
Date of test : 05.08.2005 – 17.10.2005

1.5 Test item

Description of test item : TPMS
Type identification : TAI-Safety-A
Brand name : TAI-Electrical
Serial number : Test sample without serial number
Transmitting frequency : 315 MHz
Operation mode : simplex
Transmitting mode : K1D
Voltage supply
 Transmitter : 4 V DC (Battery)
 Receiver : 12 VDC (Battery)

(If the device is using battery, please check if the device is tested under fresh battery condition.)

Highest clock frequency : 315 MHz
Antenna type : Integral Antenna
Photos : see Annex

Manufacturer: (if applicable)

Name : ./.
Street : ./.
Town : ./.
Country : ./.

Additional information : ./.

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1.6 Test standards

Technical standard : FCC RULES PART 15 / SUBPART B § 15.109/ SUBPART C
§ 15.203, § 15.209, § 15.231 (a)

2 Technical test

2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course
of the tests performed.



or

The deviations as specified in 2.5 were ascertained in the course of the tests
performed.



2.2 Test environment

Temperature : 20°C ... 26°C

Relative humidity content : 20 ... 75 %

Air pressure : 86 ... 103 kPa

Details of power supply : Transmitter : 4 V DC (Battery)

Receiver : 12 V DC (Battery)

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2.3 Test equipment utilized

No.	Test equipment	Type	Serial No.	Manufacturer	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2005/11/8
ETSTW-CE 002	PREREULATOR MODE DC POWER SUPPLY				
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	
ETSTW-CE 004	ZWEILEITER-V-NETZNACHBILDUNG TWO-LINE V-NETWORK	ESH3-Z5	840731/011	R&S	2006/11/8
ETSTW-CE 005	Line-Impedance Stabilisation Network	NNBM 8126D	137	Schwarzbeck	2006/11/3
ETSTW-CE 006	IMPULS-BEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2006/11/10
ETSTW-CE 007	SPECTRUM ANALYZER 5GHz	FSB	849670/001	R&S	
ETSTW-CE 008	ABSORBING CLAMP	MDS 21	3469	ABSORPTIONS-MESSWANDLER-ZANGE	2006/11/4
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2005/5/10
ETSTW-CE 010	Comb Generator-conducted			ETS	
ETSTW-CE 011	Power Line Conducted Emission Only			ETS	
ETSTW-CE 012	Dual-Phase-V-Network	NNB-2/16Z	03/10201	Telemeter	2006/4/11
ETSTW-CS 001	SIGNAL GENERATOR	SMX	849254/003	R&S	2005/10/31
ETSTW-CS 002	COUPLING AND DECOUPLING NETWORK	CDN S751	19263	SCHAFFNER	2006/11/3
ETSTW-CS 003	COUPLING AND DECOUPLING NETWORK	CDN T400	19820	SCHAFFNER	2006/11/3
ETSTW-CS 004	COUPLING AND DECOUPLING NETWORK	CDN M016	20053	SCHAFFNER	2006/11/3
ETSTW-CS 005	RF Power Amplifier	100A250A	306547	AR	2005/11/3
ETSTW-CS 006	Terminal 50Ω Load	50T-116 M		JFW	
ETSTW-CS 007	Terminal 50Ω Load	50T-116 F		JFW	
ETSTW-CS 008	6 dB Attenuator	HFP-5100-3/06 N M/F	2010876106		
ETSTW-RE 001	Controller	CD 1000	C01000/154/867 /004/L	Heinrich Deisel	
ETSTW-RE 002	Function Generator	33220A	MY43004982	Agilent	2005/11/3
ETSTW-RE 003	EMI TEST RECEIVER	ESI	831438/001	R&S	2005/11/16
ETSTW-RE 004	EMI TEST RECEIVER	ESI	831459/012	R&S	2005/11/9
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2005/11/1
ETSTW-RE 008	Controller	HD100	C0100-L/047/6670703/L	Heinrich Deisel	
ETSTW-RE 009	Controller	HD100	100/341	Heinrich Deisel	
ETSTW-RE 010	PROGRAMMABLE LINEAR POWER SUPPLY	LPS-305	30503070181	MOTECH	
ETSTW-RE 011	PROGRAMMABLE LINEAR POWER SUPPLY	LPS-305	30503070165	MOTECH	
ETSTW-RE 012	TUNABLE BANDREJECT FILTER	D.C 0309	146	K&L	
ETSTW-RE 013	TUNABLE BANDREJECT FILTER	D.C 0036	397	K&L	
ETSTW-RE 014	DUAL TRACKING WITH 5V FIXED	GPC-3030D		GW	
ETSTW-RE 015	ANTENNA	HK116	841489/003	R&S	
ETSTW-RE 016	ANTENNA	HL223	848953/006	R&S	
ETSTW-RE 017	ANTENNA	HL025	352886/001	R&S	

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ETSTW-RE 018	ANTENNA	AT4560	27212	AR	2006/11/7
ETSTW-RE 019	ANTENNA , HORN	22240-25	121074	FM	
ETSTW-RE 020	MICROWAVE HORN ANTENNA	AT4002A	306915	AR	
ETSTW-RE 021	SWEEP GENERATOR	SWM05	835130/010	R&S	2005/11/10
ETSTW-RE 022	AMPLIFIER	8447D	2944A09837	Agilent	2005/11/1
ETSTW-RE 023	Shielded room	SR 1		Frankonia	
ETSTW-RE 024	Anechoic Chamber	CHC 1		Frankonia	
ETSTW-RE 025	Anechoic Chamber	CHC 2		Frankonia	
ETSTW-RE 026	Open Area Test Site	10m		ETS	
ETSTW-RE 027	Passive Loop Antenna	6512	34563	EMCO	2006/6/29
ETSTW-RE 028	Log-Periodic DipoleArray Antenna	3148	34429	EMCO	2006/6/14
ETSTW-RE 029	Biconical Antenna	3109	33524	EMCO	2006/6/16
ETSTW-RE 030	Double-Ridged Waveguide Horn Antenna	3117	35224	EMCO	2006/5/4
ETSTW-RE 031	Comb Generator-radiated			ETS	
ETSTW-RE 032	Millivoltmeter	URV 55	849086/013	R&S	2005/11/17
ETSTW-RE 033	4CH 1GHz 5GS/s DSO	WAVERUNNER 6100A	LCRY0604P14508	LeCory	
ETSTW-RE 034	Power Sensor	URV5-Z4	839313/006	R&S	2005/11/17
ETSTW-RE 035	1.5GHz Active Voltage Probe	HFP1500	2332	LeCory	
ETSTW-RE 036	100MHz High Voltage Diff Probe	ADP305	3305	LeCory	
ETSTW-RE 037	Log-Periodic DipoleArray Antenna	3148	00034546	EMCO	2006/11/17
ETSTW-RE 038	Log-Periodic DipoleArray Antenna	3148	00034547	EMCO	2006/11/17
ETSTW-RE 039	Biconical Antenna	3110B	41760	EMCO	2006/11/17
ETSTW-RE 040	Biconical Antenna	3110B	41761	EMCO	2006/11/17
ETSTW-RE 041	Anechoic Chamber	CHC 3		Frankonia	
ETSTW-RE 042	ANTENNA	HK116	100172	R&S	2007/1/13
ETSTW-RE 043	ANTENNA	HL223	100166	R&S	2006/4/15
ETSTW-RE 044	ANTENNA	HL050	100094	R&S	
ETSTW-RE 048	Triple Loop Antenna	HXYZ 9170	HXYZ 9170-134	Schwarzbeck	2006/3/21
ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2007/5/18
ETSTW-EMI 001	HARMONICS 1000	HAR1000-1P	93	EMC-PARTNER	2005/11/17
ETSTW-EMS 001	Clamp BASELSTRASSE 160 CH-4242 LAUFEN	CN-EFT1000	354	EMC-PARTNER	2005/11/1
ETSTW-EMS 002	Frequency Converter	YF-6020	0308014		
ETSTW-EMS 003	EMC Immunity Test System	TRA2000IN6	579	EMC-PARTNER	2005/11/1
ETSTW-EMS 004	ESD generator minizap	ESD2000	016	EMC-PARTNER	2005/11/1
ETSTW-EMS 005	Attenautor (50Ω)	VERI50	051	EMC-PARTNER	2006/8/30
ETSTW-EMS 006	Attenautor (1 KΩ)	VERI1K	019	EMC-PARTNER	2006/10/20
ETSTW-EMS 007	20GΩ Divider	ESD-VERI-V	021	EMC-PARTNER	2006/3/16
ETSTW-RS 001	14" COLOR VIDEO MONITOR	TP-1480HR	P009799	TOPICA	
ETSTW-RS 002	14" COLOR VIDEO MONITOR	TP-1480HR	P009814	TOPICA	
ETSTW-RS 003	RF Power Amplifier	30S1G3	306933	AR	
ETSTW-RS 004	RF Power Amplifier	150W1000	307009	AR	2005/11/18

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ETSTW-RS 005	Electric Field Probe Type 8.3	EMR-20	BN 2244/20	GW	2005/9/3
ETSTW-RS 006	SIGNAL GENERATOR	SML03	101551	R&S	2005/11/15
ETSTW-RS 007	AUDIO ANALYZER	UPA3	843458/029	R&S	2005/11/15
ETSTW-EMS 008	Safety Test Solutions	ELT-400	E-0039	Narda	2006/1/3
ETSTW-EMS 009	Magnetic Field Antenna	MF1000-1	104	EMC-PARTNER	2006/12/2
ETSTW-GSM 01	SIM Simulator	IT3	B2004-50106	ORGA	
ETSTW-GSM 02	Universal Radio Communication Tester	CMU 200	103489	R&S	
ETSTW-GSM 03	Agilent 8960 Test Set 1	E5515C	GB44052675	Agilent	2006/7/13
ETSTW-GSM 04	Agilent 8960 Test Set 2	E5515C	GB44052665	Agilent	2006/7/13
ETSTW-GSM 05	Agilent 8960 Test Set 3	E5515C	GB44052652	Agilent	2006/7/16
ETSTW-GSM 06	Agilent 8960 Test Set 4	E5515C	GB44052684	Agilent	2006/7/15
ETSTW-GSM 07	Agilent 8960 Test Set 5	E5515C	GB44052658	Agilent	2006/7/13
ETSTW-GSM 08	Agilent 8960 Test Set 6	E5515C	GB44052666	Agilent	2006/7/15
ETSTW-GSM 09	Controler PC	Dell GX 270	700F61J	Dell	
ETSTW-GSM 10	Combiner Wessex / Anite	B4605/100	053	Wessex / Anite	2006/7/13
ETSTW-GSM 11	GSM 850,900,1800,1900 Test system	TS8950G		R&S	2005/10/31
ETSTW-GSM 12	Acoustical Calibrator	4231	2463874	Brüel&Kjær	2005/11/17
ETSTW-GSM 13	Conditioning Amplifier	2690-0S2	2437856	Brüel&Kjær	
ETSTW-GSM 14	Telephone Test Head	4602B	2465324	Brüel&Kjær	
ETSTW-GSM 15	Mouth Simulator	4227	2462516	Brüel&Kjær	
ETSTW-GSM 16	TEMP.&HUMIDITY CHAMBER	GTH-120-40-1P-U	MAA0501002	GIANT FORCE	2005/12/29
ETSTW-GSM 17	ANTENNT COPLER	CMU-Z10	100988	R&S	
ETSTW-GSM 18	AUDIO ANALYZER	UPL16	100173	R&S	2005/9/23
ETSTW-GSM 19	Band Reject Filter	WRCTF824/ 849-822/851-40 /12+9SS	3	WI	
ETSTW-GSM 20	Band Reject Filter	WRCD1747/1748- 1743/1752-32/5SS	1	WI	
ETSTW-GSM 21	Band Reject Filter	WRCD1879.5/ 1880.5- 1875.5/ 1884.5-32/5SS	3	WI	
ETSTW-GSM 22	Band Reject Filter	WRCT901.9/903.1 - 904.25-50/8SS	1	WI	

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2.4 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-2003 5.2 using a 50 μ H LISN (if necessary). Both lines were observed. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-2003 6.4 using a spectrum analyzer. The bandwidth of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was the 100 kHz and the video bandwidth was 300 kHz. The ambient temperature of the UUT was 23°C with a humidity of 40 %.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dB μ V) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB.

Example:

Freq (MHz)	METER READING + ACF + CABLE LOSS (to the receiver) = FS
33	20 dB μ V + 10.36 dB/m + 6 dB = 36.36 dB μ V/m @3m

ANSI STANDARD C63.4-2003 6.2.1 MEASUREMENT PROCEDURES: The UUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m (non metallic table). The UUT was placed in the center of the table. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10th harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings.

Measurements were made by ETS Dr. Genz Taiwan PS Co., Ltd. at the registered open field test site located at. The Registration Number: **930600**

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

ANTENNA & GROUND:

This unit uses integral antenna. (see photo).

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3 Test results (enclosure)

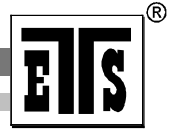
☒ 1st test

☐ test after modification

☐ production test

TEST CASE	Para. Number	Required	Test passed	Test failed
Transmission Requirements	FCC 15.231(a)	☒	☒	☐
Radiated Emission	FCC 15.231(b)	☒	☒	☐
Bandwidth of Emission	FCC 15.231(c)	☒	☒	☐
Frequency Tolerance	FCC 15.231(d)	☐	☐	☐
Period Alternate Field Strength Requirements	FCC 15.231(e)	☐	☐	☐
Antenna Requirement	FCC 15.203	☐	☐	☐
Radiated Emission from Receiver	FCC 15.109	☒	☒	☐
Radiated Emission from Digital Part	FCC 15.109	☐	☐	☐
Conducted Measurement at (AC) Power Line	FCC 15.207	☐	☐	☐

The follows is intended to leave blank.



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3.1 Transmission Requirements

FCC 15.231(a)

3.1.1 Limit of Transmission Time

According to 15.231(a)(2), a transmitter activated automatically shall cease transmission within 5 seconds after activation.

3.1.2 Active Time

This transmitter is operated by automatic activation and active will cease transmission in 55.12 ms after activation..

Remark: See attached appendix A

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3.2 Output Power (Field Strength)

Test condition		Transmitter field strength (dB μ V/m)
$T_{nom} = 25.7\text{ }^{\circ}\text{C}$	$V_{nom} = 4\text{V DC}$	66.60
Measurement uncertainty		< 3 dB

Limit 15.231(b)

Fundamental Frequency (MHz)	Field strength of fundamental, limit $\mu\text{V/m}$
40.66 – 40.70	2,250
70 – 130	1,250
130 – 174	1,250 to 3,750
174 – 260	3,750
260 – 470	3,750 to 12,500** (433.92 MHz: 80.8 dB μ V/m = 10,965 $\mu\text{V/m}$)
Above 470	12,500

** linear interpolation

Remarks: see attached diagrams

Test equipment used: ETSTW-RE 003, ETSTW-RE 012, ETSTW-RE 016, ETSTW-RE 024

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3.3 Out of Band Radiated Emissions

FCC Rule: 15.231(b) , 15.35

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

Limits:

For frequencies below 1GHz :

Max permitted average Limits = Max. reading – 20 dB

$80.80 \text{ dB}\mu\text{V/m} - 20 \text{ dB} = 60.80 \text{ dB}\mu\text{V/m}$

Guidance on Measurement of pulsed emission: 815.231 (b), §15.35(c)

“If the emission is pulsed, modify the unit for continues operation , use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.” Here the correction was added to the limit instead subtracted from the reading.

Duty Cycle correction = $20 \log (\text{dwell time}/100\text{ms})$

For frequencies above 1GHz (Peak measurements).

Modified Limits for peak conform 15.35 (b) = Max Permitted average Limits + 20dB (because Peak detector is used)

$80.80 \text{ dB}\mu\text{V/m}$

For frequencies above 1GHz (Average measurements).

Correction factor conform 15.35 (c) (Average measurements)

Duty cycle correction :

Max. reading – 20 dB – duty cycle correction:

No duty cycle correction was added to the reading

$80.80 \text{ dB}\mu\text{V/m} - 20 \text{ dB} = 60.80 \text{ dB}\mu\text{V/m}$

Remarks: See attached diagrams.

Test equipment used: ETSTW-RE 003, ETSTW-RE 012, ETSTW-RE 024

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3.4 Transmitter Radiated Emissions in restricted Bands

FCC Rules: 15.231 (b), 15.205, 15.209, 15.35

Radiated emission measurements were performed from 30 MHz to 8000 MHz.

For radiated emission tests, the analyzer setting was as followings:

RES BW VID BW

Frequency <1 GHz 100 kHz 100 kHz (Peak measurements)

Frequency >1 GHz 1 MHz 1 MHz (Peak measurements)

1 MHz 1 MHz (Average measurements)

Limits:

For frequencies below 1GHz :

Frequency of Emission (MHz)	Field strength (microvolts/meter)	Field Strength (dB microvolts/meter)
30 – 88	100	40.0
88 – 216	150	43.5
216 – 960	200	46.0
Above 960	500	54.0

For frequencies above 1GHz (Average measurements).

Guidance on Measurement of pulsed emission:

“If the emission is pulsed, modify the unit for continues operation , use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.

For frequencies above 1GHz (Average measurements).

The correction factor, based on the channel dwell time in a 100 ms period, may be mathematically applied to a measurement made with an average detector, to further reduce the value.

Duty cycle correction = $20 \log (\text{dwell time}/100\text{ms})$

No duty cycle correction was added to the reading

Modified Limits for peak conform 15.35 (b) = Max Permitted average Limits + 20dB (because Peak detector is used)

Above 960 MHz

For mode DSSS CW: $54 \text{ dB}\mu\text{V/m} + 20 \text{ dB} = 74 \text{ dB}\mu\text{V/m}$

Remarks: See attached diagrams.

Test equipment used: ETSTW-RE 003 , ETSTW-RE 012 , ETSTW-RE 015 , ETSTW-RE 016 , ETSTW-RE 017 , ETSTW-RE 024

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3.5 Spurious Emission radiated, Transmitter

Spurious emission was measured with modulation (declared by manufacturer).

The limits on the field strength of the spurious emission in the table § 15.231(b) are based on the fundamental frequency of the intentional radiator. Spurious emission shall be attenuated to the average (or alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in § 15.209, whichever limit permits a higher field strength.

In addition, radiated emission which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

SAMPLE CALCULATION OF LIMIT. All results will be updated by an automatic measuring system in accordance to point 2.3.

Calculation of test results:

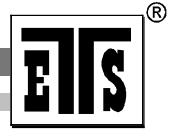
Such factors like antenna correction, cable loss, external attenuation etc. are already included in the provided measurement results. This is done by using validated test software and calibrated test system according the accreditation requirements.

The peak and average spurious emission plots was measured with the average limits.

In the Table being listed the critical peak and average value an exhibit the compliance with the above calculated Limits.

Summary table with radiated data of the test plots

Freq	Used Ch	Frequency Marker [MHz]	Polarization	corrections dB	Corrected Reading [dBuV/m]	Compliance Limit [dBuV/m]	Detector	BW [MHz]	Margin
1		35.11022	V		22.04	40	PK	0.1	17.96
2		284.96994	V		36.99	46	PK	0.1	9.01
2		945.490982	V		41.06	46	PK	0.1	4.94
3		1889.77956	V		40.04	54	PK	1	13.96
3		2202.40481	V		43.72	54	PK	1	10.28
1		187.395	H		26.19	43.5	PK	0.1	17.31
2		284.96994	H		39.13	46	PK	0.1	6.87
2		915.03006	H		43.27	46	PK	0.1	2.73
2		945.490982	H		43.45	46	PK	0.1	2.55
3		1889.77956	H		38.36	54	PK	1	15.64
3		2202.40481	H		40.59	54	PK	1	13.41
3		2521.04208	H		40.98	54	PK	1	13.02



Registration number: W6M20507-5944-C-1
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Freq. – Frequency Range:

- 1: 30 - 200 MHz
- 2: 200 - 1000MHz
- 3: 1 - 4 GHz
- 4: 4 - 8 GHz

All other not noted test plots do not contain significant test results in relation to the limits

Test results: The unit meet the FCC requirements.

Comment: See attached diagrams.

Test equipment used: ETSTW-RE 003 , ETSTW-RE 012 , ETSTW-RE 015 , ETSTW-RE 016 , ETSTW-RE 017 , ETSTW-RE 024

Registration number: W6M20507-5944-C-1
FCC ID: TD3-CQS2005001

3.6 Channel Bandwidth

Measurement of Necessary Bandwidth (BN)

Used frequency	Bandwidth	Limit
315 MHz	29.487 kHz	1.0828 MHz
Measurement uncertainty	< 10 Hz	

Remarks: The bandwidth fulfills the requirements of FCC § 15.231,
see attached diagrams

Limits:

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

Test equipment used: ETSTW-RE 003 , ETSTW-RE 012

Registration number: W6M20507-5944-C-1

FCC ID: TD3-CQS2005001

3.7 Spurious Emission radiated, Receiver

FCC 15.109

Freq	Used Ch	Frequency Marker [MHz]	Polarization	corrections dB	Corrected Reading [dBuV/m]	Compliance Limit [dBuV/m]	Detector	BW [MHz]	Margin
1		140.3808	V		25.99	43.5	PK	0.1	17.51
2		284.9699	V		29.1	46	PK	0.1	16.9
2		943.8878	V		37.43	46	PK	0.1	8.57
3		2232.465	V		34.75	54	PK	1	19.25
1		93.70742	H		20.18	43.5	PK	0.1	23.32
2		284.9699	H		30.72	46	PK	0.1	15.28
3		3278.557	H		25.99	54	PK	1	28.01

Limits:

Frequency (MHz)	E-field field strength limit dB μ V/m
30 – 88	40.00
88 – 216	43.52
216 – 960	46.02
Above 960	53.98 (73.98 dB μ V/m 20 dB peak detector)

Above 960 MHz: limit line 74 dB μ V/m 20 dB peak detector

Remarks: see attached diagram.

Test equipment used: ETSTW-RE 003 , ETSTW-RE 012 , ETSTW-RE 015 , ETSTW-RE 016 , ETSTW-RE 017 , ETSTW-RE 024

Registration number: W6M20507-5944-C-1
FCC ID: TD3-CQS2005001

3.8 Conducted Measurement at (AC) Power Line

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the table bellows with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

This measurement was transact first with instrumentation using an average and peak detector and a 10 kHz bandwidth. If the peak detector achieves a calculated level, the measurement is repeated by an instrumentation using a quasi-peak detector.

Frequency	Level	
	quasi-peak	average
150 kHz	dB μ V/m	dB μ V/m

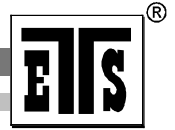
Limits:

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi Peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

Test is not required the sample is using a battery.

Test equipment used: ETSTW-CE 004, ETSTW-CE 001, ETSTW-RE 023

Comment: not required



Registration number: W6M20507-5944-C-1
FCC ID: TD3-CQS2005001

Appendix

- A Active Time
- B Output Power
- C Spurious Emissions radiated - Transmitter
- D Bandwidth
- E Spurious Emission radiated - Receiver
- F Pictures



Registration number: W6M20507-5944-C-1
FCC ID: TD3-CQS2005001

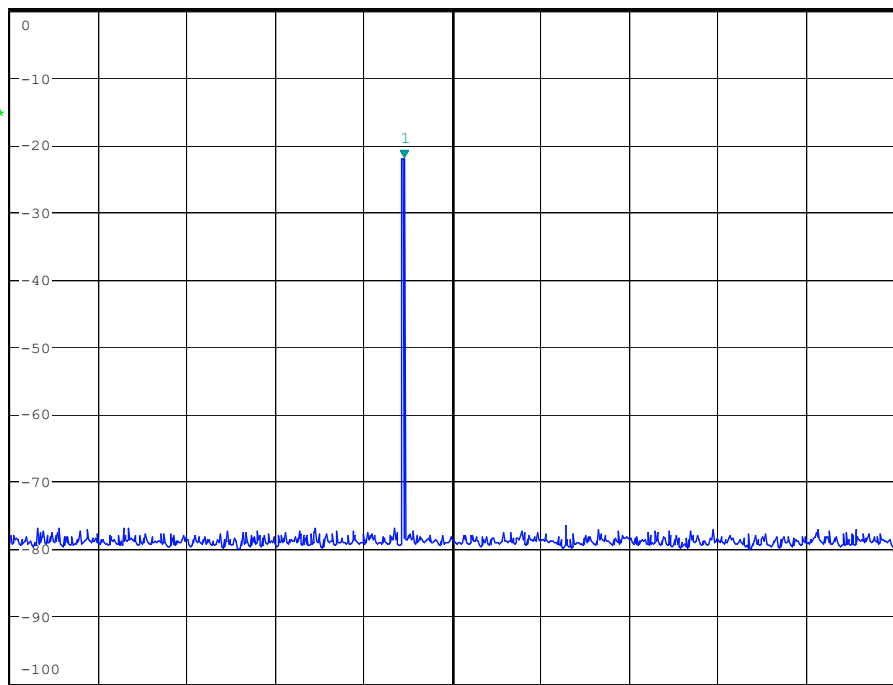
Appendix A

Active Time



1 PK
VIEW

Ref 0 dBm *Att 15 dB RBW 100 kHz Marker 1 [T1]
*VBW 100 kHz -22.19 dBm
SWT 6 s 2.673077 s

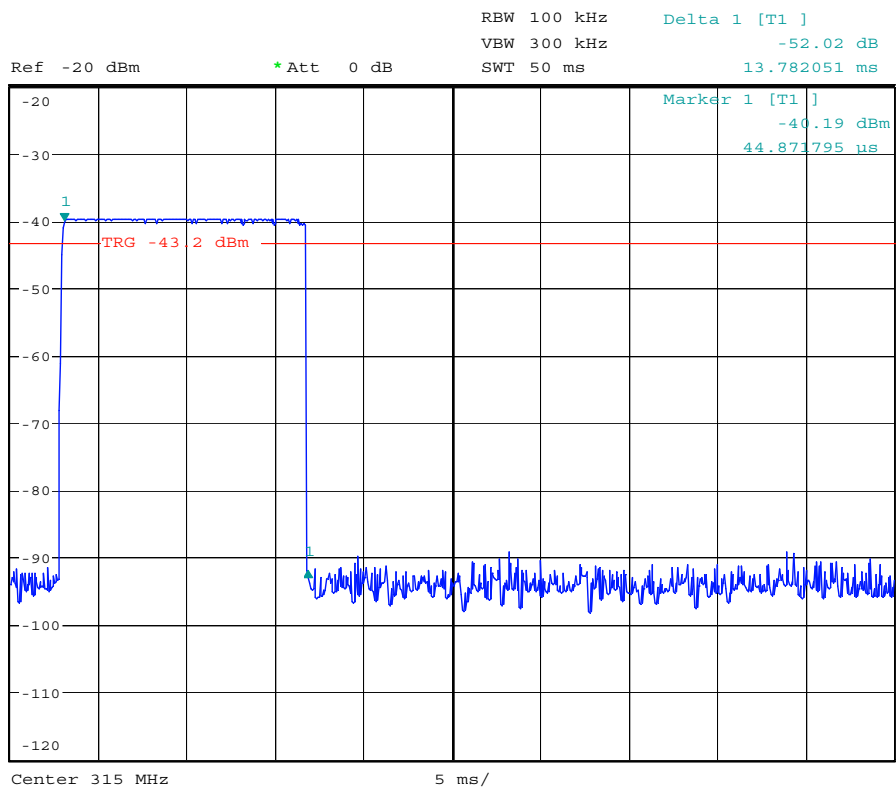


Active Time

Date: 20.OCT.2005 12:20:27

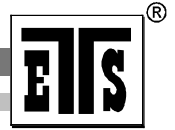


1 PK
MAXH



Active time

Date: 5.OCT.2005 07:49:58



Registration number: W6M20507-5944-C-1
FCC ID: TD3-CQS2005001

Appendix B

Output Power

Field Strength of Fundamental

FCC RULES PART 15, SUBPART C

EUT: TPMS

MODEL NO.: TAI-Safety-A

Approval Holder: TAI Electrical Products Inc.

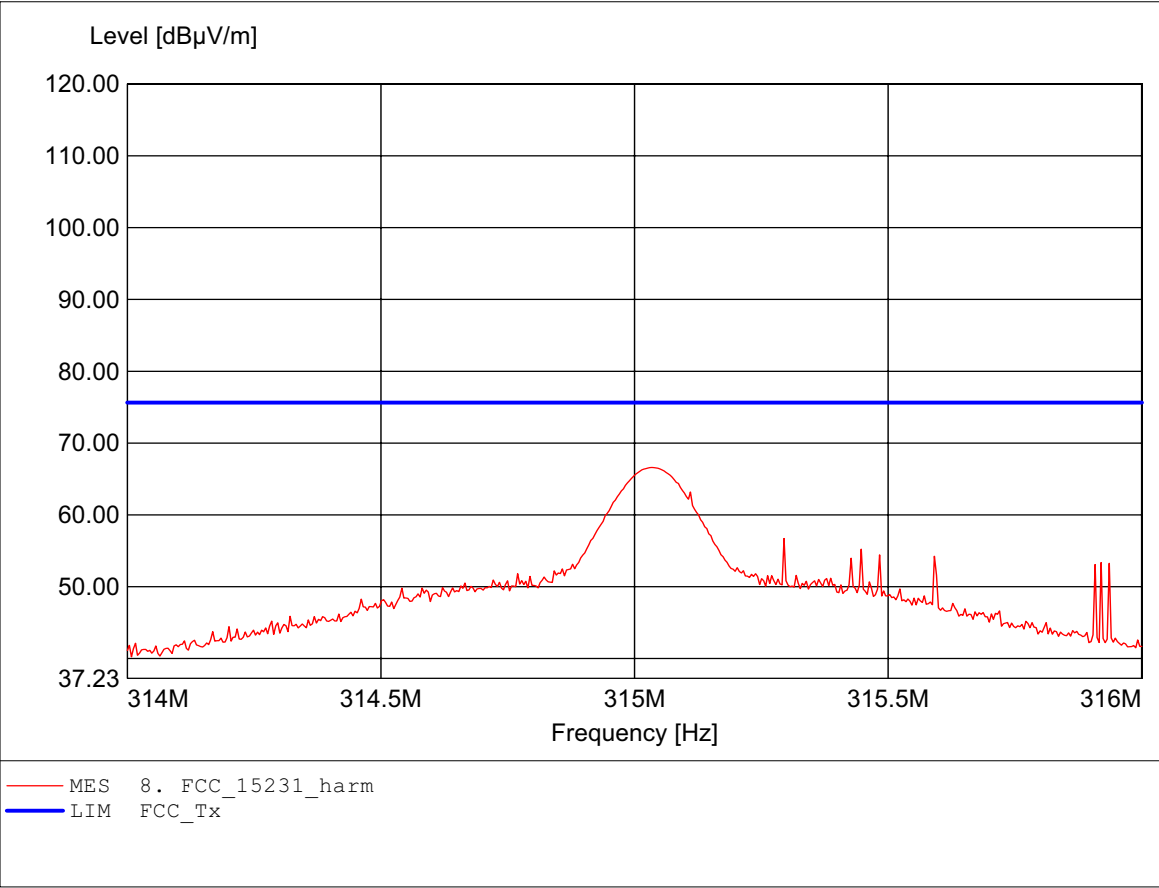
Test Site / Operator: ETS / Catey

Temperature/Voltage: Temp.: 23°C/ Unom.: 4 VDC (battery)

Test Specification: according to Section15.231

Comment 1: Dist.: 3m, Ant.: HL223

Freq: 315.034MHz, Emax: 66.60dBμV/m, RBW: 100kHz



Field Strength of Fundamental

FCC RULES PART 15, SUBPART C

EUT: TPMS

MODEL NO.: TAI-Safety-A

Approval Holder: TAI Electrical Products Inc.

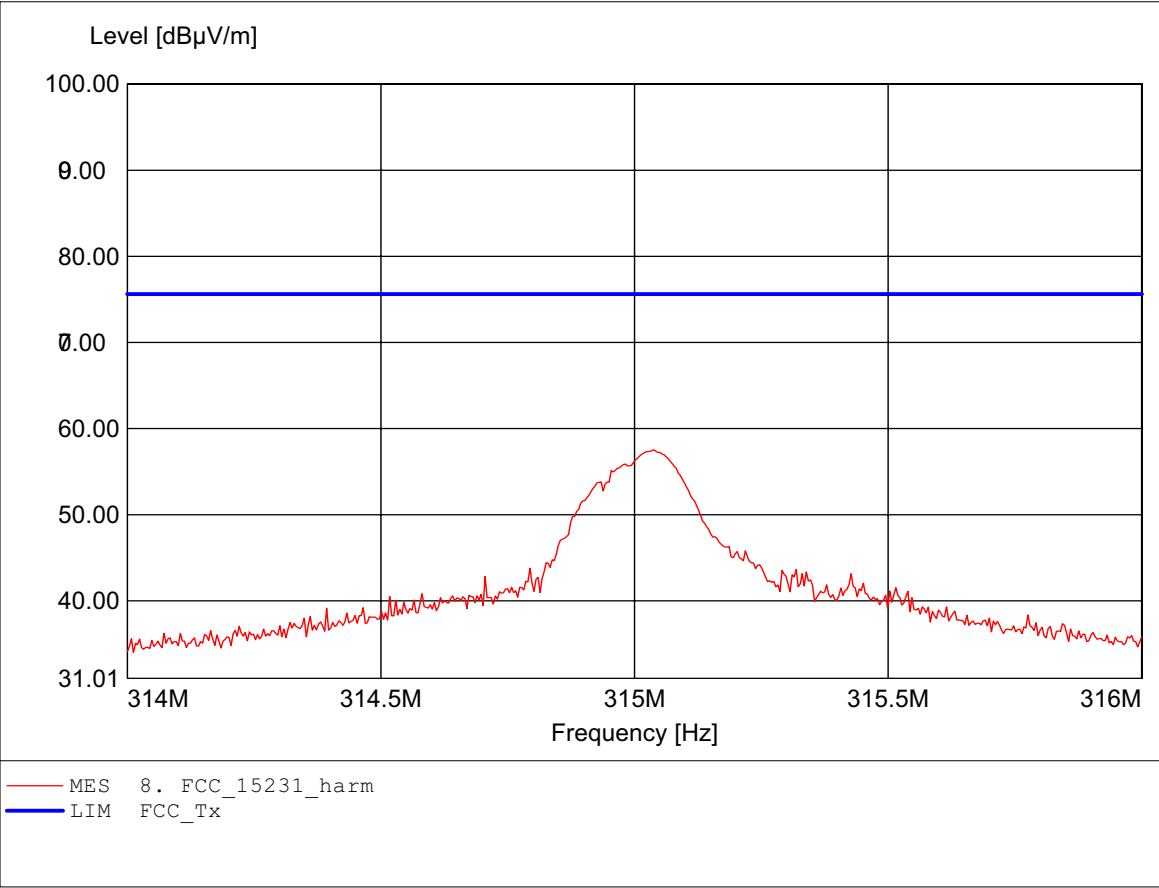
Test Site / Operator: ETS / Catey

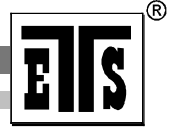
Temperature/Voltage: Temp.: 23°C/ Unom.: 4 VDC (battery)

Test Specification: according to Section15.231

Comment 1: Dist.: 3m, Ant.: HL223

Freq: 315.038MHz, Emax: 57.54dBμV/m, RBW: 100kHz





Registration number: W6M20507-5944-C-1
FCC ID: TD3-CQS2005001

Appendix C

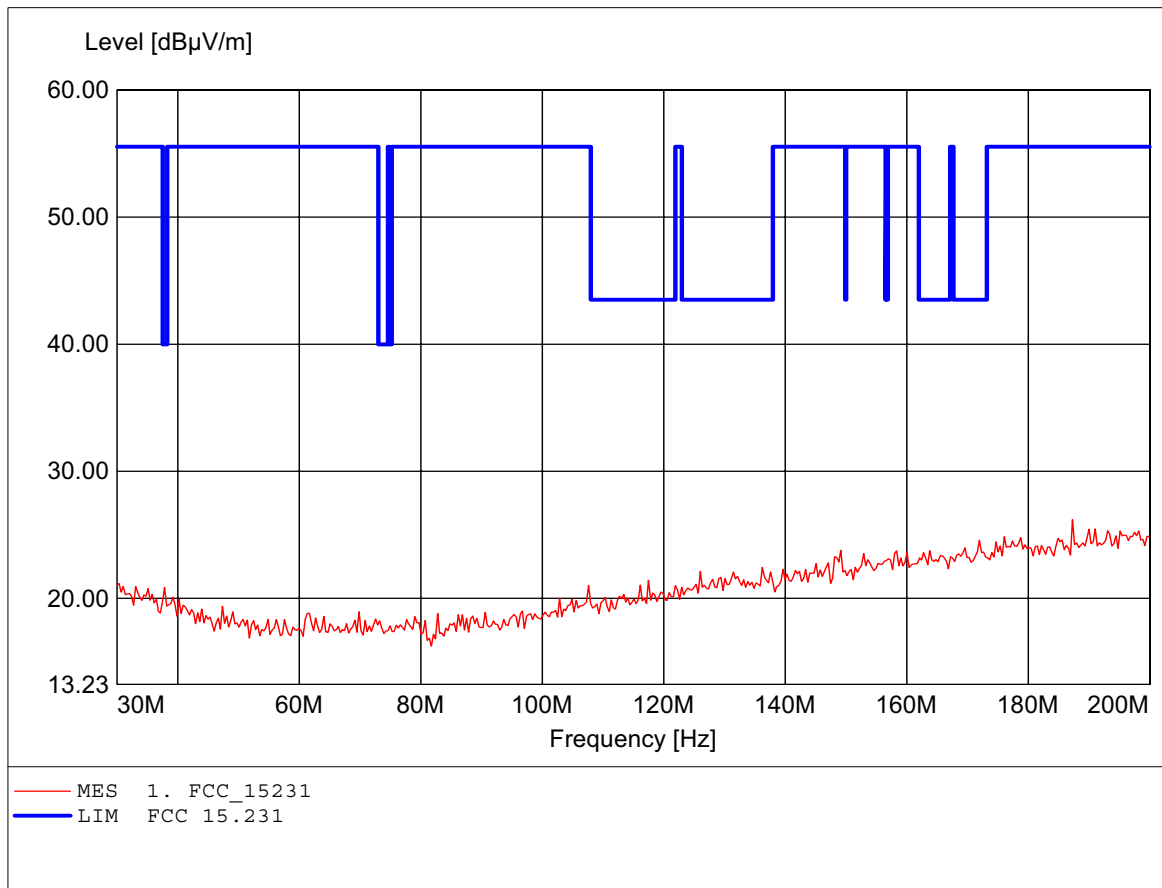
Spurious Emissions radiated - Transmitter

(The measurement diagrams are wideband pre-scan results; only for reference)

Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

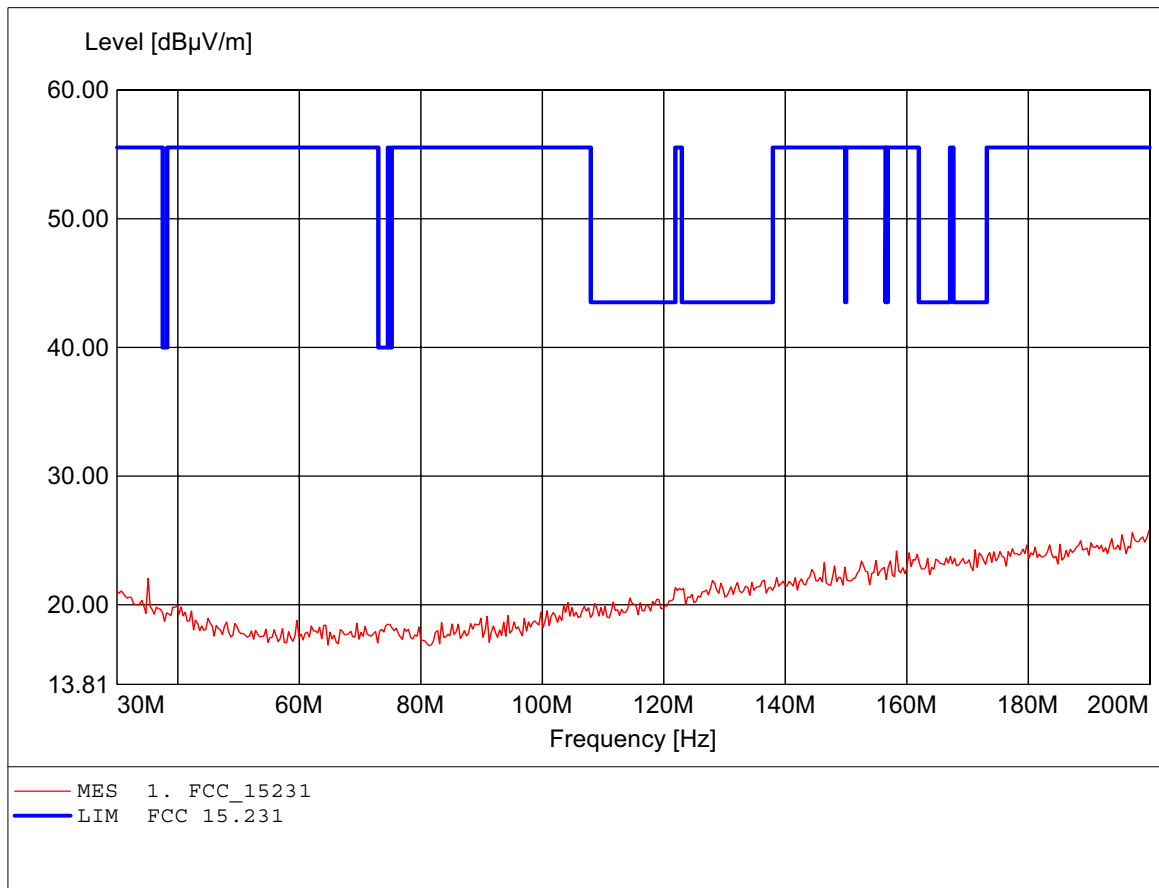
EUT: TPMS
MODEL NO.: TAI-Safety-A
Approval Holder: TAI Electrical Products Inc.
Test Site / Operator: ETS / Catey
Temperature/Voltage: Temp.: 23°C/ Unom.: 4 VDC (battery)
Test Specification: according to Section15.231
Comment 1: Dist.: 3m, Ant.: HK 116
Freq: 187.395MHz, Emax: 26.19dBμV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

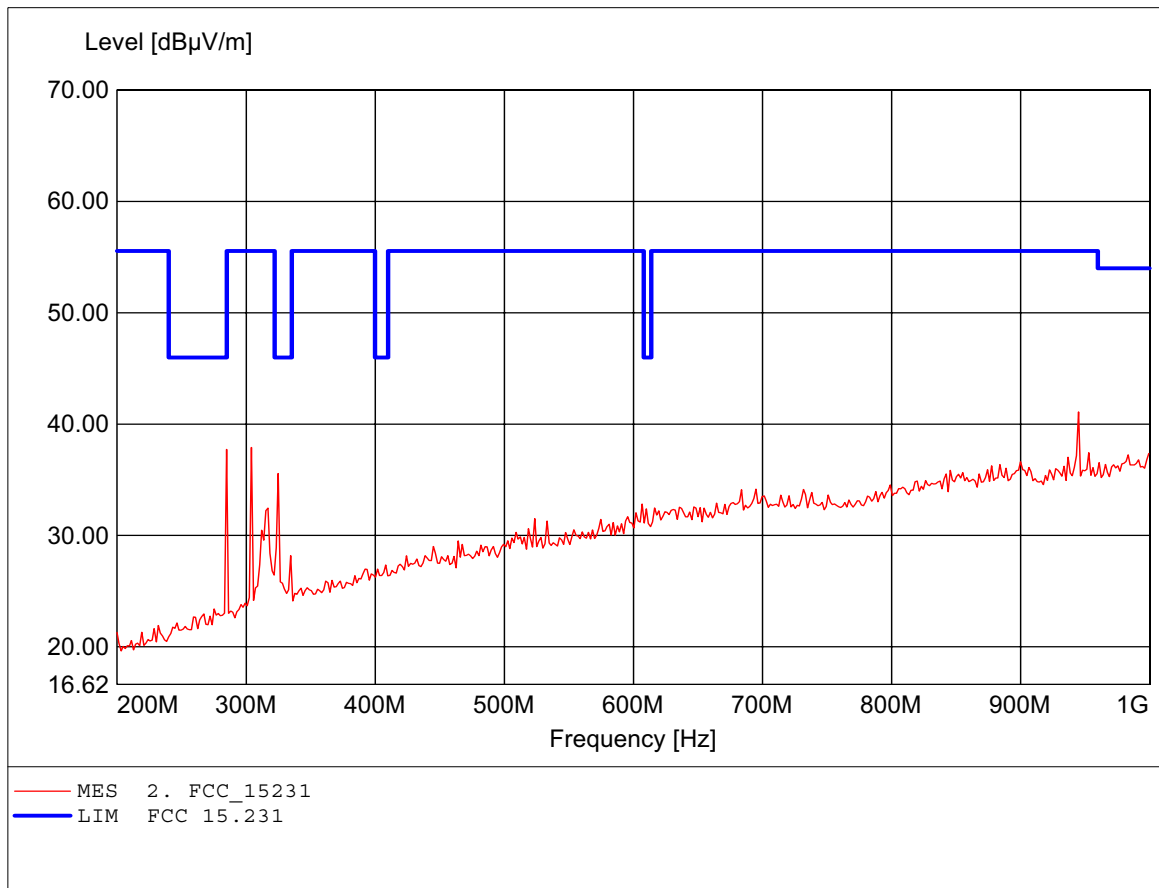
EUT: TPMS
MODEL NO.: TAI-Safety-A
Approval Holder: TAI Electrical Products Inc.
Test Site / Operator: ETS / Catey
Temperature/Voltage: Temp.: 23°C/ Unom.: 4 VDC (battery)
Test Specification: according to Section15.231
Comment 1: Dist.: 3m, Ant.: HK 116
Freq: 200.000MHz, Emax: 25.74dBµV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

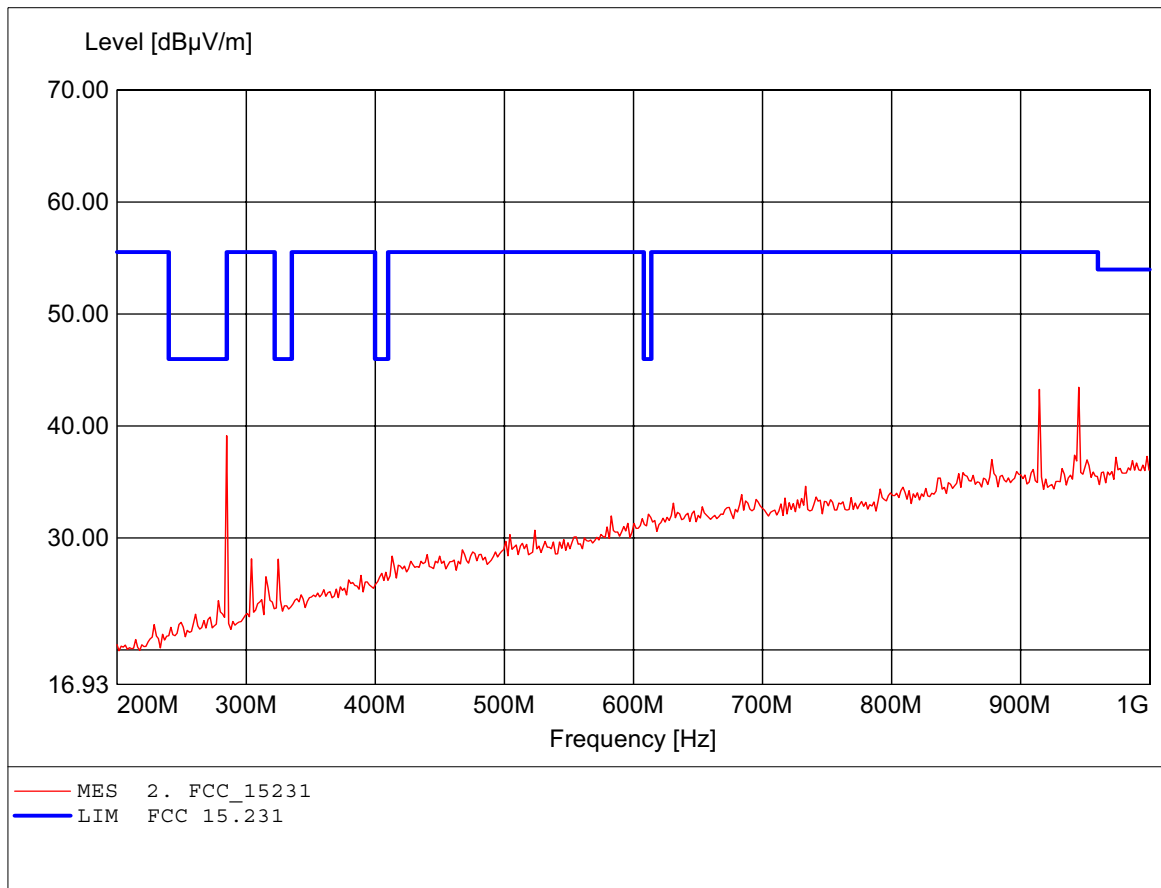
EUT: TPMS
MODEL NO.: TAI-Safety-A
Approval Holder: TAI Electrical Products Inc.
Test Site / Operator: ETS / Catey
Temperature/Voltage: Temp.: 23°C/ Unom.: 4 VDC (battery)
Test Specification: according to Section15.231
Comment 1: Dist.: 3m, Ant.: HL 223, amplif.
Freq: 945.491MHz, Emax: 41.09dBμV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

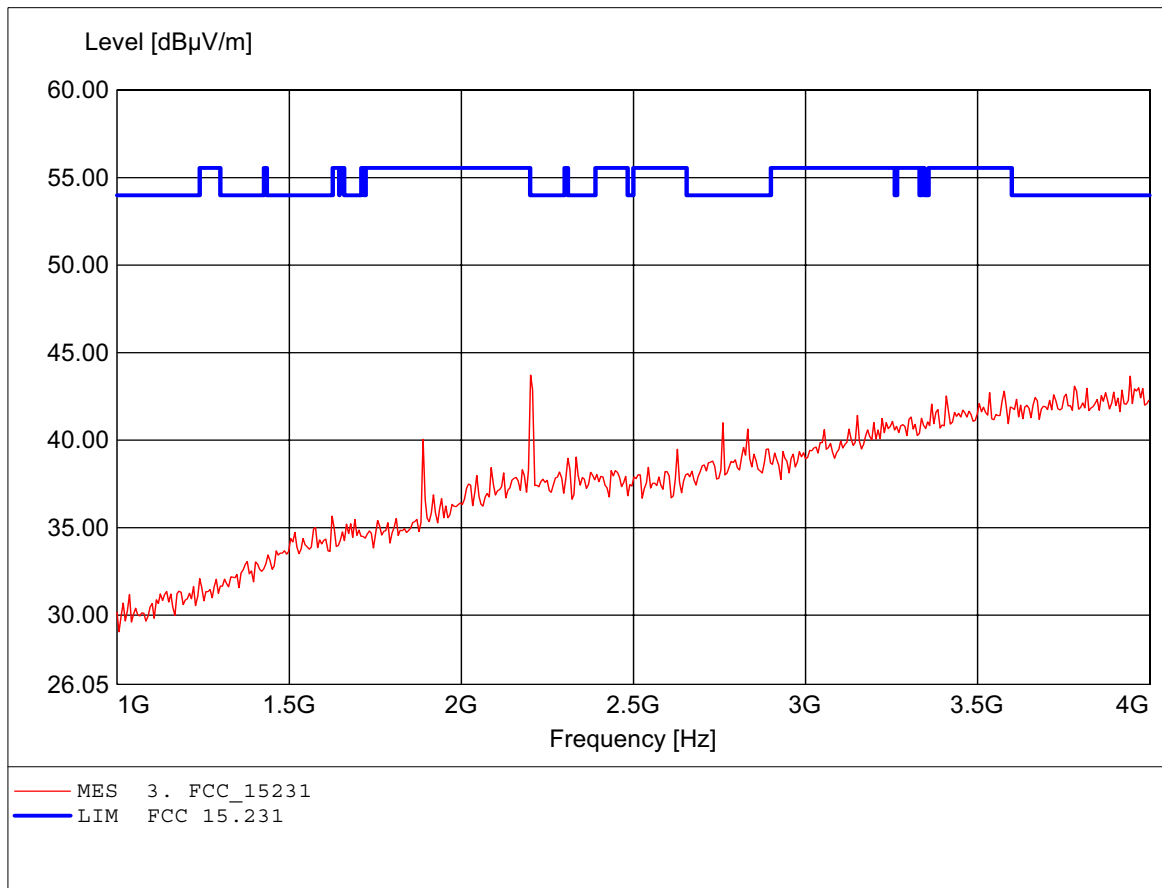
EUT: TPMS
MODEL NO.: TAI-Safety-A
Approval Holder: TAI Electrical Products Inc.
Test Site / Operator: ETS / Catey
Temperature/Voltage: Temp.: 23°C/ Unom.: 4 VDC (battery)
Test Specification: according to Section15.231
Comment 1: Dist.: 3m, Ant.: HL 223, amplif.
Freq: 945.491MHz, Emax: 43.45dBµV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

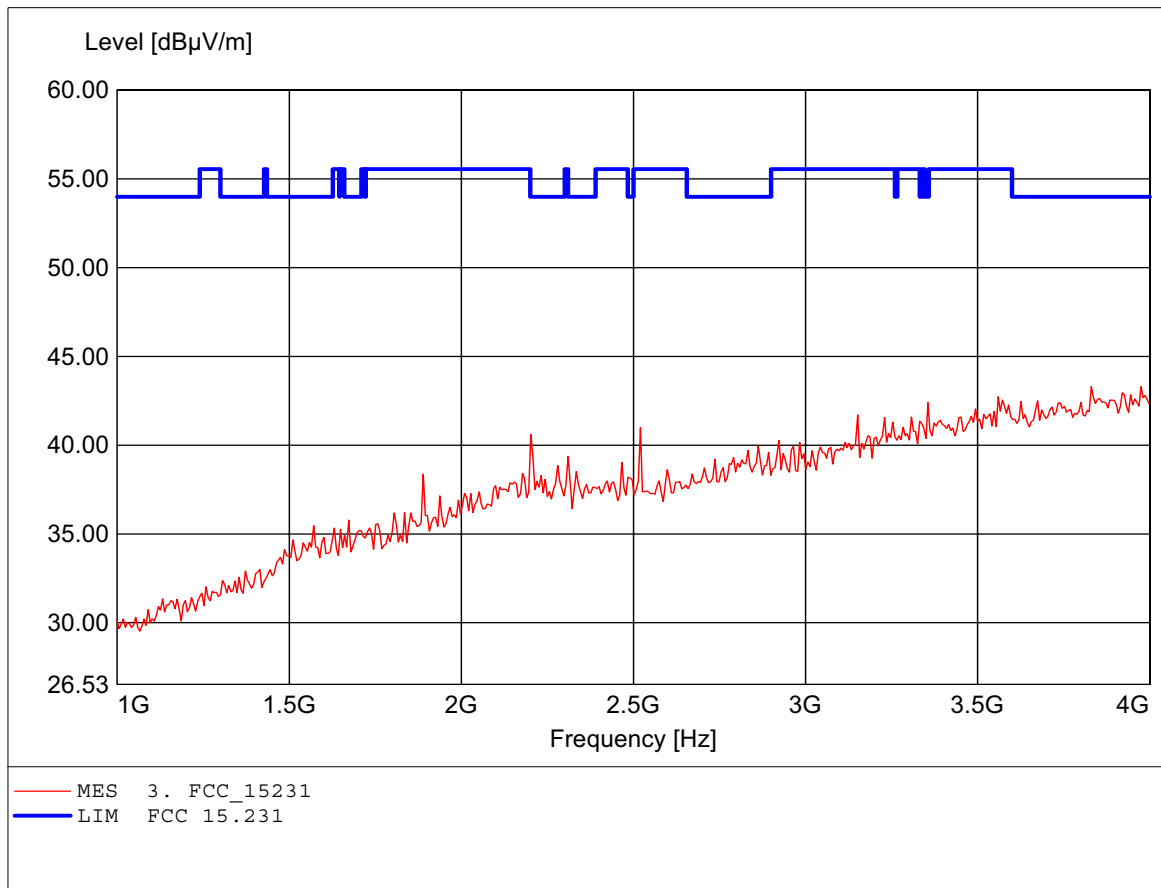
EUT: TPMS
MODEL NO.: TAI-Safety-A
Approval Holder: TAI Electrical Products Inc.
Test Site / Operator: ETS / Catey
Temperature/Voltage: Temp.: 23°C/ Unom.: 4 VDC (battery)
Test Specification: according to Section 15.231, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, amplif.
Freq: 2.202GHz, Emax: 43.72dBμV/m, RBW: 1MHz

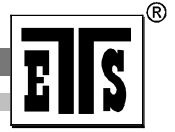


Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

EUT: TPMS
MODEL NO.: TAI-Safety-A
Approval Holder: TAI Electrical Products Inc.
Test Site / Operator: ETS / Catey
Temperature/Voltage: Temp.: 23°C/ Unom.: 4 VDC (battery)
Test Specification: according to Section 15.231, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, amplif.
Freq: 3.832GHz, Emax: 43.31dBuV/m, RBW: 1MHz





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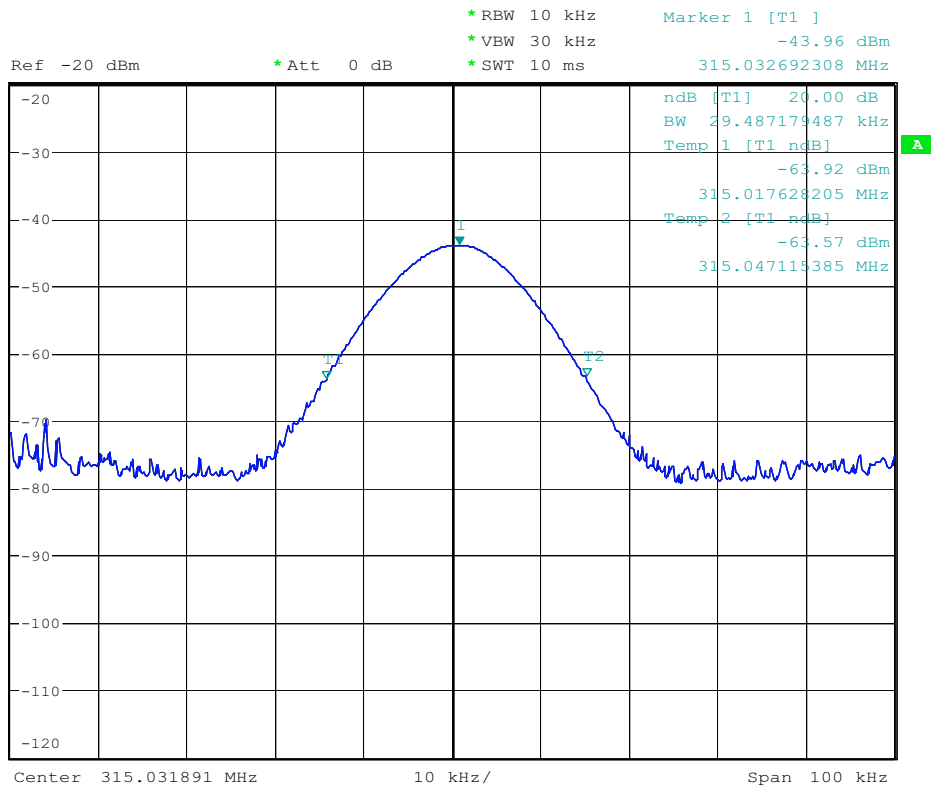
Appendix D

Bandwidth



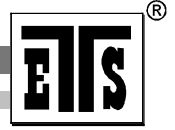
1 PK
MAXH

2 PK
MAXH



20dB Bandwidth

Date: 5.OCT.2005 06:02:50



Registration number: W6M20507-5944-C-1
FCC ID: TD3-CQS2005001

Appendix E

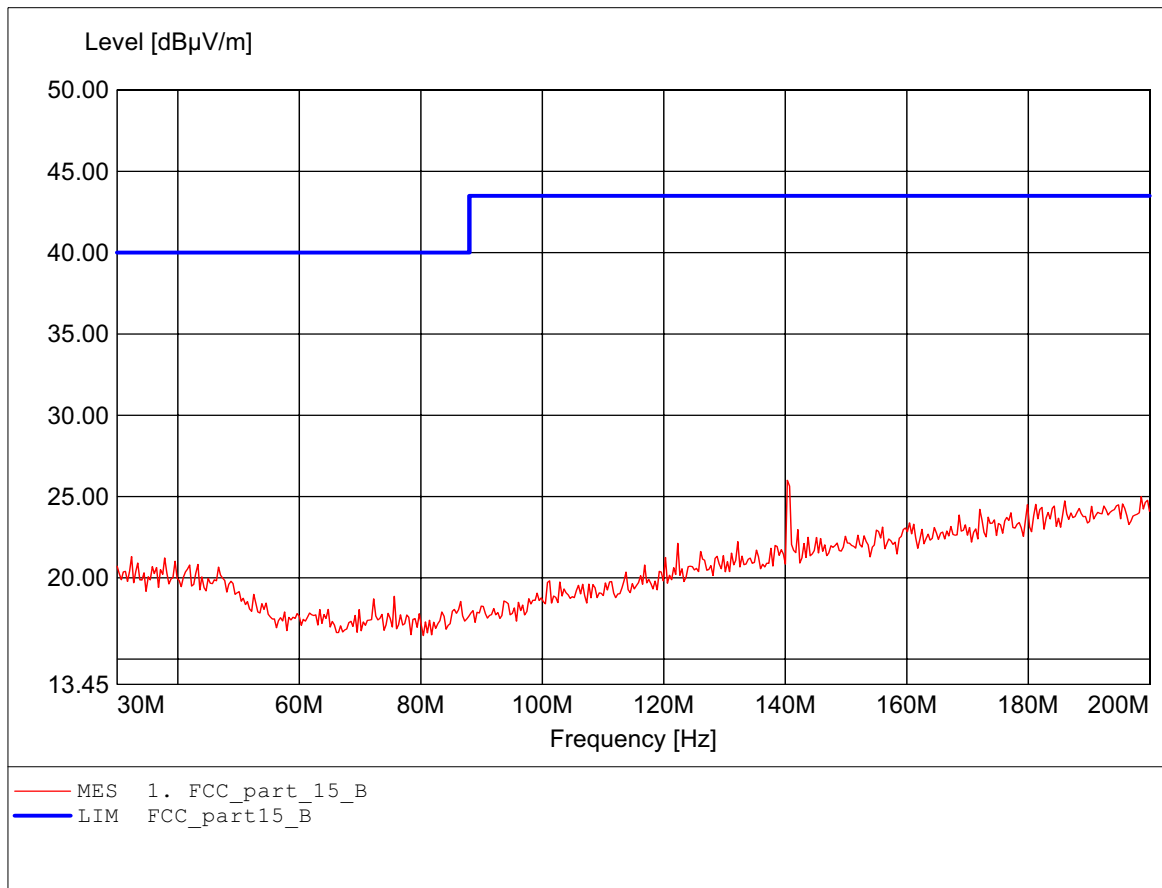
Spurious Emission radiated - Receiver

(The measurement diagrams are wideband pre-scan results; only for reference)

Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

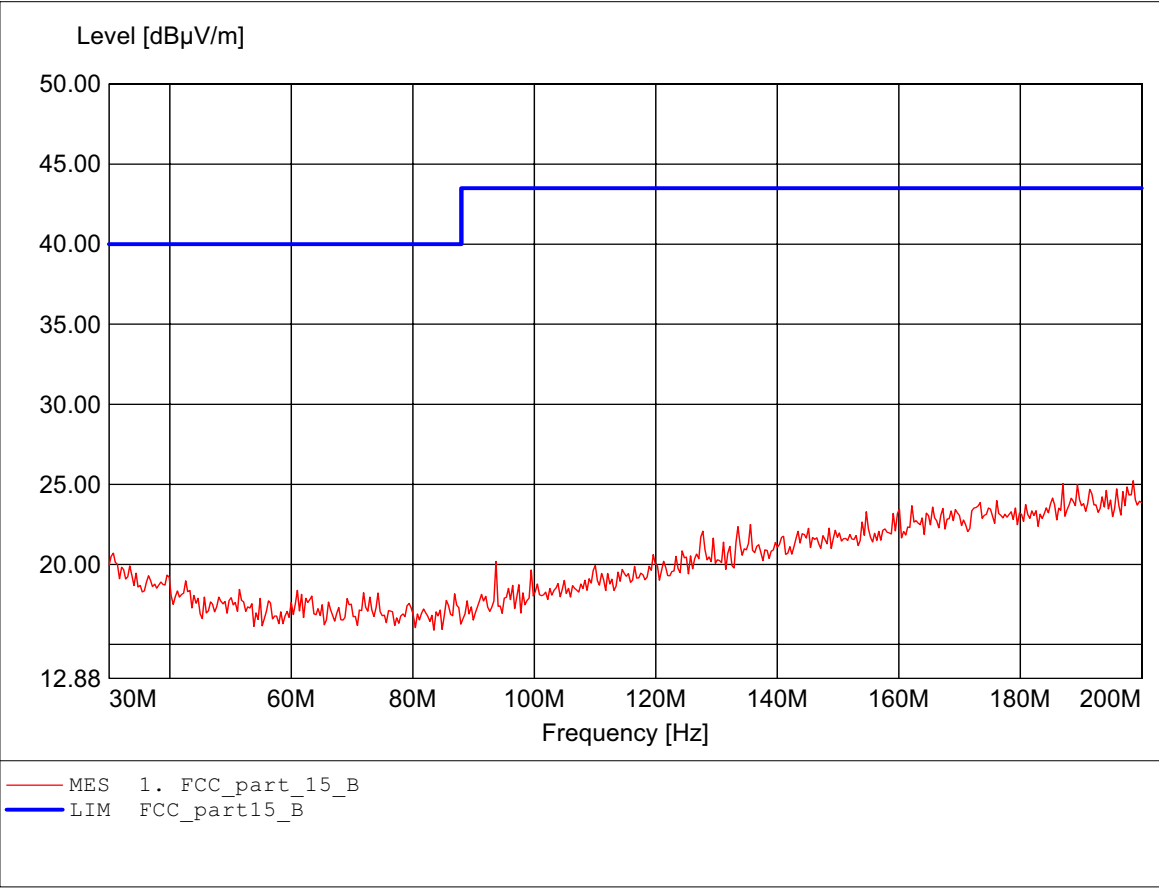
EUT: TPMS
MODEL NO.: TAI-Safety-A
Approval Holder: TAI Electrical Products Inc.
Test Site / Operator: ETS / Catey
Temperature/Voltage: Temp.: 23°C/ Unom.: 12 VDC (battery)
Test Specification: according to subpart B
Comment 1: Dist.: 3m, Ant.: HK 116
Freq:140.381MHz Emax:25.99dBµV/m RBW: 100 kHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

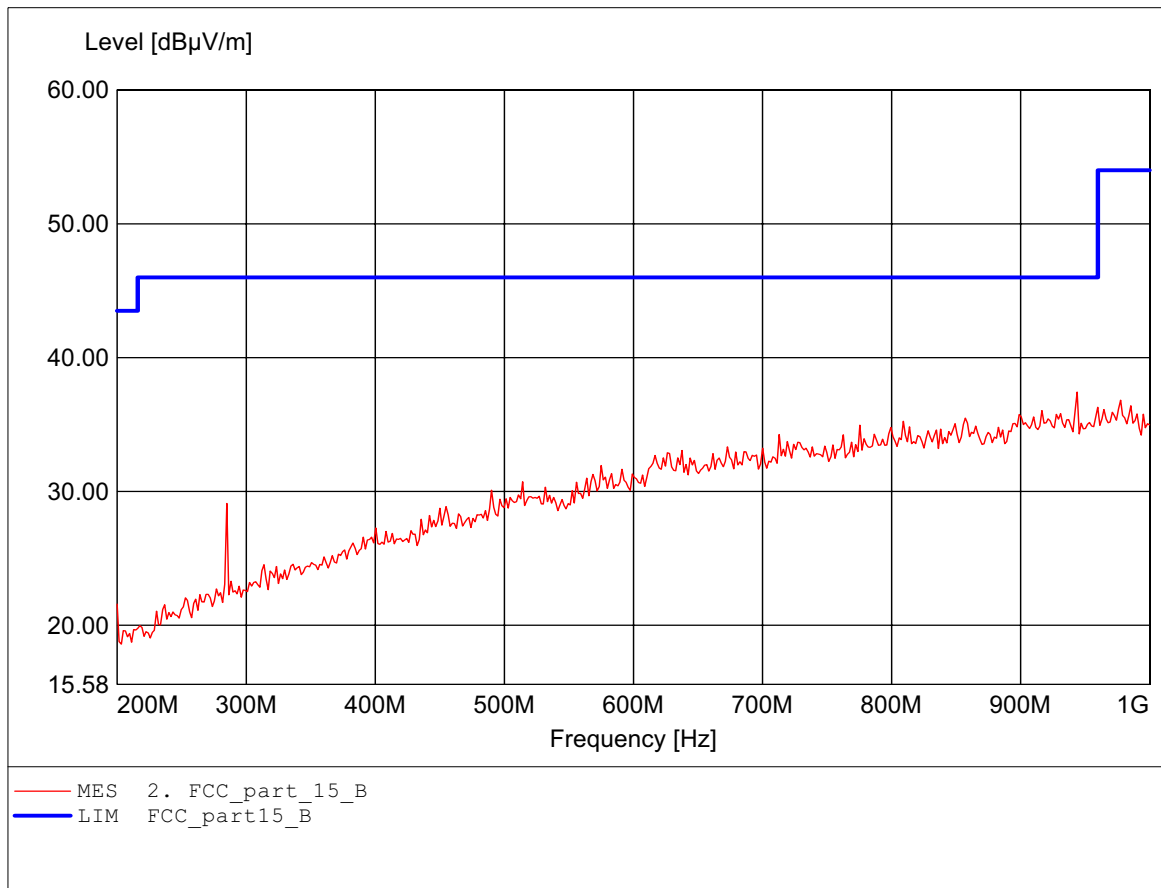
EUT: TPMS
MODEL NO.: TAI-Safety-A
Approval Holder: TAI Electrical Products Inc.
Test Site / Operator: ETS / Catey
Temperature/Voltage: Temp.: 23°C/ Unom.: 12 VDC (battery)
Test Specification: according to subpart B
Comment 1: Dist.: 3m, Ant.: HK 116
Freq:198.637MHz Emax:25.23dBµV/m RBW: 100 kHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

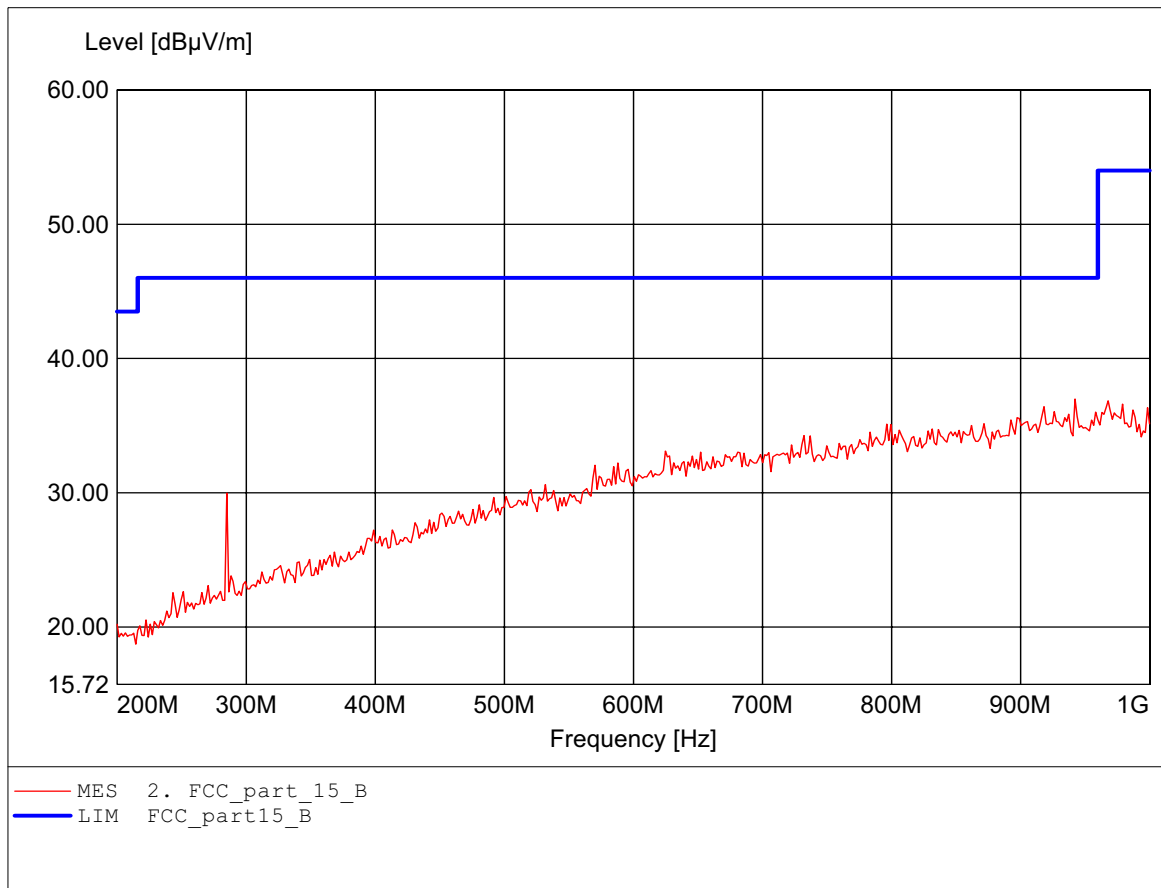
EUT: TPMS
MODEL NO.: TAI-Safety-A
Approval Holder: TAI Electrical Products Inc.
Test Site / Operator: ETS / Catey
Temperature/Voltage: Temp.: 23°C/ Unom.: 12 VDC (battery)
Test Specification: according to subpart B
Comment 1: Dist.: 3m, Ant.: HL 223, ampl.
Freq: 943.888MHz Emax: 37.43dBμV/m RBW: 100 kHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

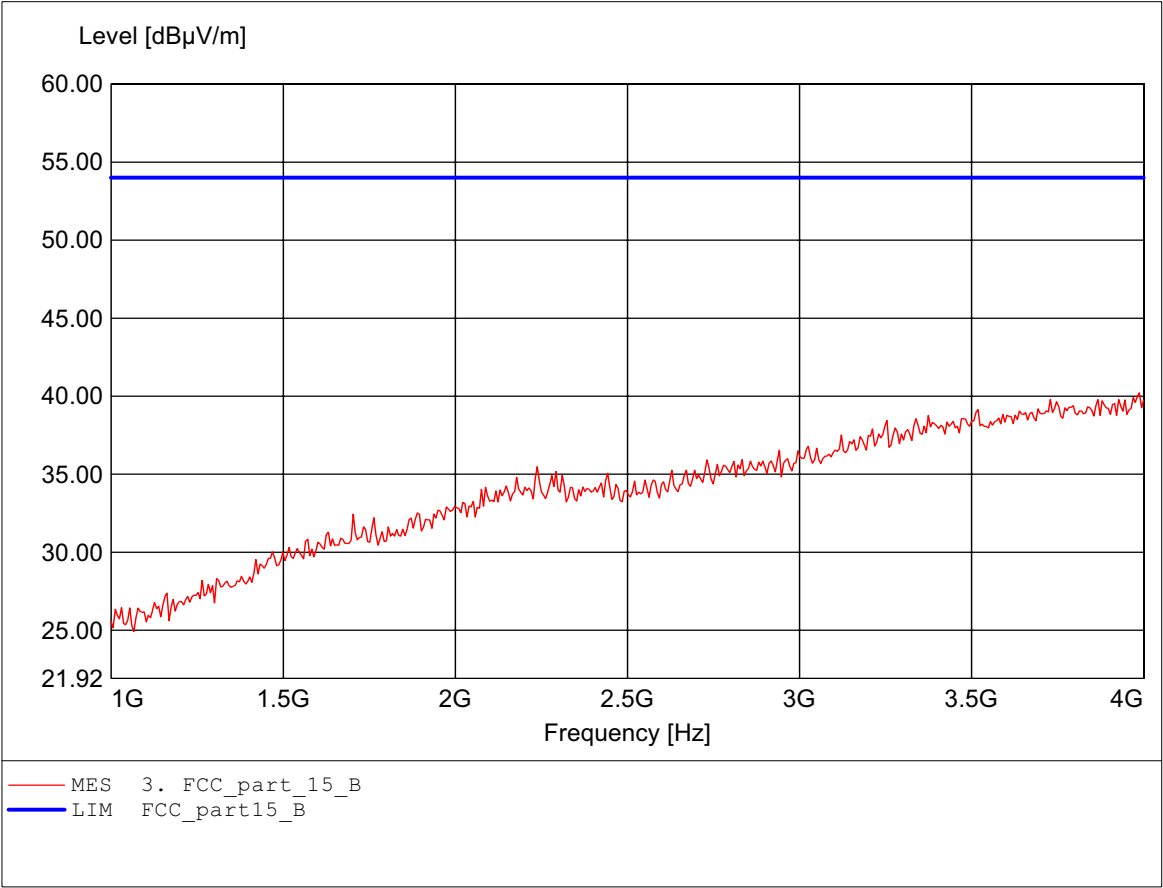
EUT: TPMS
MODEL NO.: TAI-Safety-A
Approval Holder: TAI Electrical Products Inc.
Test Site / Operator: ETS / Catey
Temperature/Voltage: Temp.: 23°C/ Unom.: 12 VDC (battery)
Test Specification: according to subpart B
Comment 1: Dist.: 3m, Ant.: HL 223, ampl.
Freq:942.285MHz Emax:36.98dBμV/m RBW: 100 kHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

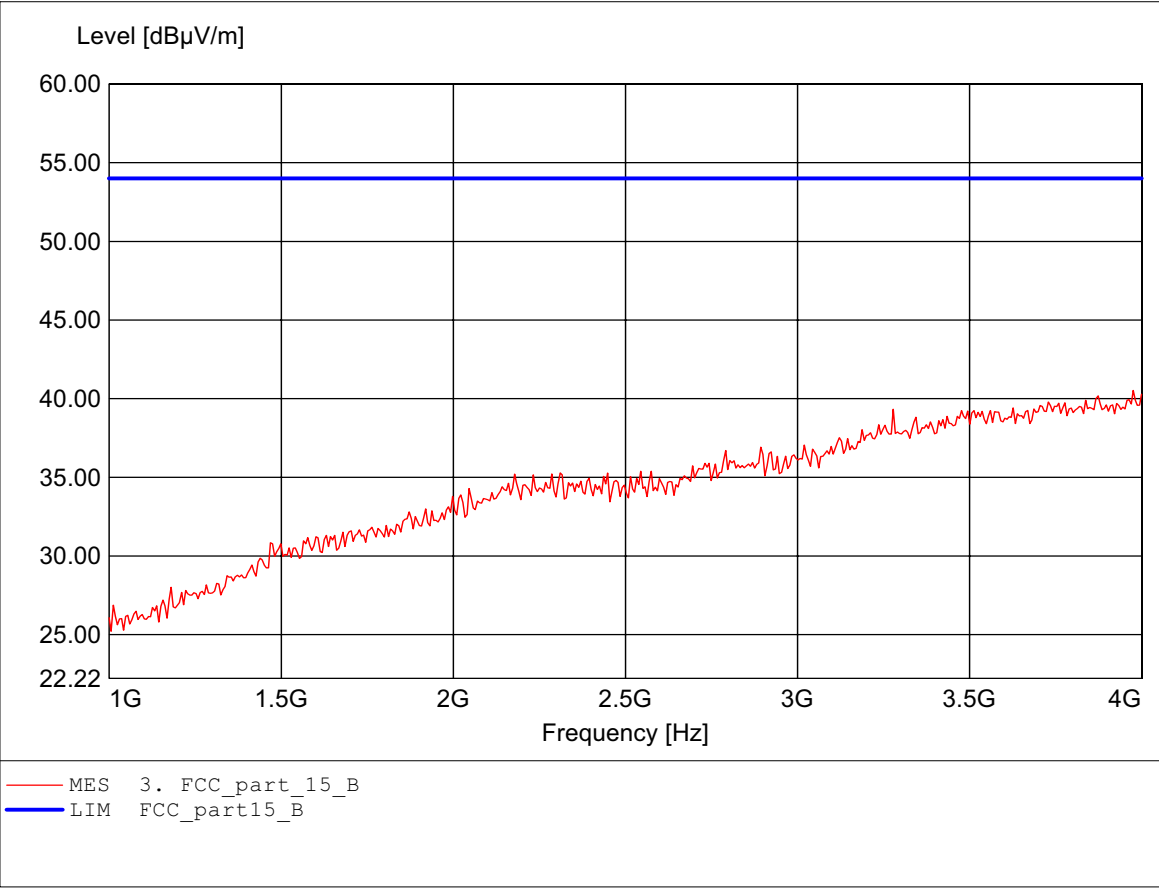
EUT: TPMS
MODEL NO.: TAI-Safety-A
Approval Holder: TAI Electrical Products Inc.
Test Site / Operator: ETS / Catey
Temperature/Voltage: Temp.: 23°C/ Unom.: 12 VDC (battery)
Test Specification: according to subpart B
Comment 1: Dist.: 3m, Ant.: HL25, ampl.
Freq:3.988GHz Emax:40.21dBμV/m RBW: 1 MHz

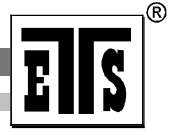


Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

EUT: TPMS
MODEL NO.: TAI-Safety-A
Approval Holder: TAI Electrical Products Inc.
Test Site / Operator: ETS / Catey
Temperature/Voltage: Temp.: 23°C/ Unom.: 12 VDC (battery)
Test Specification: according to subpart B
Comment 1: Dist.: 3m, Ant.: HL25, ampl.
Freq:3.976GHz Emax:40.52dBμV/m RBW: 1 MHz





Registration number: W6M20507-5944-C-1
FCC ID: TD3-CQS2005001

Appendix F

Pictures