Prüfbericht-Nr.: *Test report no.:*	**CN25DDR7 001**	**Auftrags-Nr.:** *Order no.*:	**326070979**	**Seite 1 von 18** *Page 1 of 18*
Kunden-Referenz-Nr.: *Client reference no.:*	**N/A**	**Auftragsdatum:** *Order date:*	**2025-01-02**	
Auftraggeber: *Client:*	**Whetron Electronics (Suzhou) Co., Ltd.** No. 457 Xiangjiang Road, High New District, Suzhou, Jiangsu, 215129, P.R. China			
Prüfgegenstand: *Test item:*	TPMS Sensor			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	2D000907 FCC ID: 2ALBSS200272300S1 IC:27971-2D000907			
Auftrags-Inhalt: *Order content*:	Complete test			
Prüfgrundlage: *Test specification:*	FCC CFR47 Part 15, Subpart C Section 15.231 RSS-210 Issue 11, June 2024 RSS-Gen Issue 5, Amendment 2,February 2021 ANSI C63.10: 2013			
Wareneingangsdatum: *Date of sample receipt:*	2025-01-03			
Prüfmuster-Nr.: *Test sample no:*	A003900826-001, A003900826-002			
Prüfzeitraum: *Testing period:*	Refer to test report			
Ort der Prüfung: *Place of testing:*	TÜV Rheinland (Shanghai) Co., Ltd.			
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shanghai) Co., Ltd.			
Prüfergebnis*: *Test result*:*	Pass			

geprüft von: *tested by:*	X Weidong Wang Signed by: Weidong Wang	**genehmigt von:** *authorized by:*	x Elliot Zhang Signed by: Elliot Zhang
Datum: *Date:* 2025-01-23		**Ausstellungsdatum:** *Issue date:* 2025-01-23	
Stellung / *Position:*	Sachverständige(r)/Expert	**Stellung** / *Position:*	Sachverständige(r)/Expert

Sonstiges / *Other:* HVIN: 2D000907
PMN: TPMS Sensor

Zustand des Prüfgegenstandes bei Anlieferung: *Condition of the test item at delivery:* Prüfmuster vollständig und unbeschädigt *Test item complete and undamaged*

* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
* *Legend:*	*P(ass) = passed a.m. test specification(s)*	*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

Anmerkungen
Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. *The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system.* *Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.*
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3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. *Test clauses with remark of * are subcontracted to qualified subcontractors and descripted under the respective test clause in the report.* *Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.*
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnisen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezueglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. *The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.*

TEST SUMMARY

5.1.1 ANTENNA REQUIREMENT
RESULT: Pass

5.1.2 20DB & 99% BANDWIDTH
RESULT: Pass

5.1.3 TRANSMISSION TIME / SILENT PERIOD
RESULT: Pass

5.1.4 CONDUCTED EMISSION
RESULT: N/A

5.1.5 FIELD STRENGTH OF FUNDAMENTAL AND RADIATED SPURIOUS EMISSION
RESULT: Pass

Contents

1. General Remarks

1.1 Complementary Materials

Null.

2. Test Sites

2.1 Test Facilities

TÜV Rheinland (Shanghai) Co., Ltd.
Workshop14, North Half of Workshop 10 and Workshop 16, Pingqian (Taicang) Modern Industrial Park, No.525, Yuewang Lingang South Road, Shaxi, Taicang, Jiangsu, China

The used test equipment is in accordance with CISPR 16 for measurement of radio interference.

The Federal Communications Commission has reviewed the technical characteristics of the radiated and conducted emission facility, and has found these test facilities to be in compliance with the requirements of section 2.948 of the FCC rules. The description of the test facility is listed under FCC registration number 930979.

The Innovation, Science and Economic Development Canada has reviewed the technical characteristics of the radiated and conducted emission facility, and has found these test facilities to be in compliance. The description of the test facility is listed under chambers filing number 33038.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Equip.	Description	Model	Manufacturer	Due Date
G1825371	Preamplifier	EMC051845SE	Taiwan EMCI	2025-07-25
G1822694	Double ridged broadband horn antenna	BBHA 9120 D	Schwarzbeck	2026-03-24
G1822702	Spectrum analyser	FSV40	Rohde&Schwarz	2025-07-15
G1811378	3m semi-anechoic chamber	SAC3	Frankonia	2026-12-03
G1811391	EMI test receiver	ESCI	Rohde&Schwarz	2025-10-17
G1811425	Bilog antenna	CBL 6112D	Teseq	2026-04-20
9053474	Signal generator	SMB100B (6 GHz)	Rohde & Schwarz	2025-12-10
9053476	Vector Signal generator	SMW200A	Rohde & Schwarz	2025-12-10
9053477	OSP	OSP-B157W8	Rohde & Schwarz	2025-12-10
9047770	Wireless connectivity tester	CMW270	Rohde & Schwarz	2025-08-23
9062745	EMI measurement software	EMC32-MEB (10.60.20)	Rohde&Schwarz	NA

2.3 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

2.5 Measurement Uncertainty

Table 2: Measurement Uncertainty

Measurement Type	Frequency	Uncertainty
Radiated Emission	30MHz - 1GHz	±5.34dB
	> 1GHz	±5.40dB

3. General Product Information

3.1 Product Function and Intended Use

The EUT (equipments under test) is a TPMS Sensor which is working on 433.92MHz.
For details refer to the User Manual and Circuit Diagram.

3.2 Ratings and System Details

Table 3: Technical Specification of EUT

General Description of EUT	
Product Name:	TPMS Sensor
Model No.:	2D000907
Rated Voltage:	DC 3V (CR2050HR)
Technical Specification of Transmitter	
Frequency Range:	433.92 MHz
Modulation Type:	FSK
Antenna Type:	Planar antenna

3.3 Independent Operation Modes

Table 4: Independent Operation Modes

Test Mode	Channel Frequency	Mode
TM1	433.92 MHz	Transmitting continually
TM2	433.92 MHz	Normal operation

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Bill of Material
- PCB Layout
- Photo Document
- Circuit Diagram
- Instruction Manual
- Rating Label

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Null.

4.3 Special Accessories and Auxiliary Equipment

Null.

4.4 Countermeasures to achieve EMC Compliance

Null.

5. Test Results

5.1 Conducted Testing at Antenna Port

5.1.1 Antenna Requirement

RESULT: **Pass**

According to the manufacturer declared, the EUT has one Internal antenna, the antenna is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Table 5: Antenna Requirement

FCC 15.203 – Antenna Requirement 1		
Requirement:	No antenna other than that furnished by the responsible party shall be used with the device	
Results:	Antenna type:	Planar antenna
Verdict:	Pass	

FCC 15.204 – Antenna Requirement 2	
Requirement:	An intentional radiator may be operated only with the antenna with which it is authorized. If an antenna is marketed with the intentional radiator, it shall be of a type which is authorized with the intentional radiator.
Results:	Only one antenna can be used
Verdict:	Pass

RSS-Gen 6.4 – External Control	
Requirement:	The device shall not have any external controls accessible to the user that enable it to be adjusted, selected or programmed to operate in violation of the regulatory requirements, including RSS-Gen and the applicable RSSs
Results:	The device does not have any transmitter external controls accessible to the user that can be adjusted and operated in violation of the limits of this standard.
Verdict:	Pass

RSS-Gen 6.8 – Antenna Requirement		
Requirement:	When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer.	
Results:	a) Antenna Type:	Planar Antenna
	b) Manufacture:	ExPlus Co., Ltd.
	c) Model No.:	CS8006
	d) Gain with reference to an isotropic radiator:	N/A
Verdict:	Pass	

5.1.2 20dB & 99% Bandwidth

RESULT: **Pass**

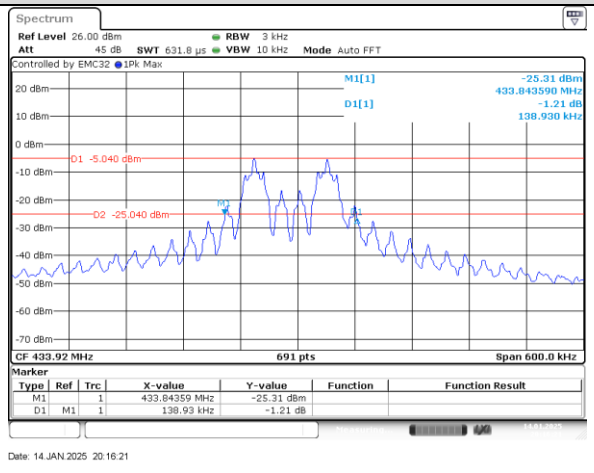
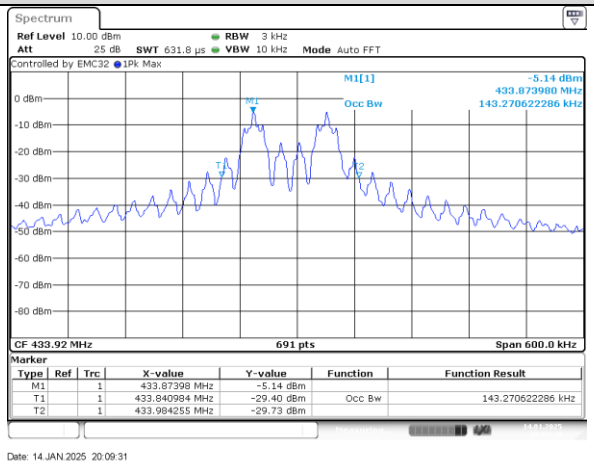
Date of testing	:	2025-01-14
Ambient temperature	:	19.2°C
Relative humidity	:	45.5%
Atmospheric pressure	:	101kPa
Test requirement	:	FCC Part 15.231(c) RSS-210 Issue 11, June 2024, A.1.4
Test procedure	:	ANSI C63.10: 2013
Test voltage	:	DC 3V
Test modes applied	:	TM1

Table 6: 20dB & 99% Bandwidth

Channel Frequency [MHz]	20dB Bandwidth [KHz]	Limit [KHz]	99% Bandwidth [KHz]	Result
433.92	138.93	⩽1084.8	143.27	Pass

Note: Limit =433920 KHz × 0.25%=1084.8 KHz

Figure 1: 20dB & 99% Bandwidth

20dB Bandwidth	99% Bandwidth
	

5.1.3 Transmission Time / Silent Period

RESULT: **Pass**

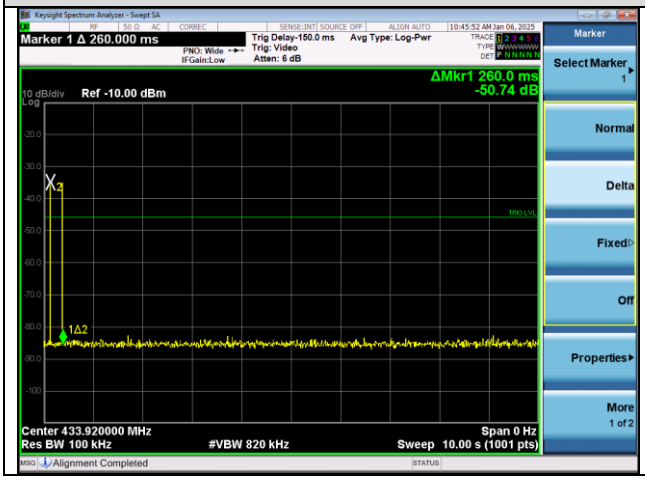
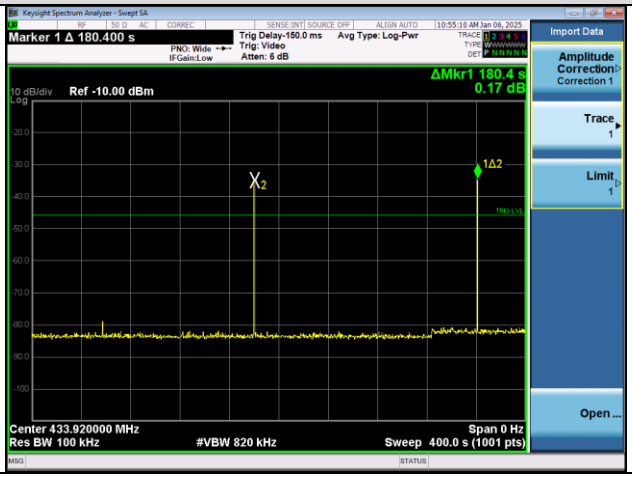
Date of testing	:	2025-01-06
Ambient temperature	:	23.3°C
Relative humidity	:	48.1%
Atmospheric pressure	:	101kPa
Test requirement	:	FCC Part 15.231(e) RSS-210 Issue 11, June 2024, A.1.5(b)
Test procedure	:	ANSI C63.10: 2013
Test voltage	:	DC 3V
Test modes applied	:	TM2

Table 7: Transmission Time / Silent Period

Channel Frequency [MHz]	Transmission Time [s]	Limit [s]	Result
433.92	0.26	<1	Pass
Channel Frequency [MHz]	Silent Period [s]	Limit [s]	Result
433.92	180.4	>10	Pass

Limit: the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds

Figure 2: Transmission Time / Silent Period

Transmission Time	Silent Period
	

5.1.4 Conducted Emission

RESULT: **N/A**

Test requirement	:	FCC Part 15.207 (a) RSS-Gen Issue 5, Amendment 2, February 2021, Clause 8.8
Test procedure	:	ANSI C63.10: 2013

Note:
This product is power by battery.
So, this test is not applicable.

5.1.5 Field strength of fundamental and Radiated Spurious Emission

RESULT: **Pass**

Date of testing	:	2025-01-06 ~ 2025-01-13
Ambient temperature	:	21°C
Relative humidity	:	42.3%
Atmospheric pressure	:	101kPa
Test requirement	:	FCC Part 15.205 FCC Part 15.209 FCC Part 15.231(e) RSS-210 Issue 11, June 2024, A.1.5(d) RSS-Gen Issue 5, Amendment 2, February 2021, Clause 8.9
Test procedure	:	ANSI C63.10: 2013
Test voltage	:	DC 3V
Test modes applied	:	TM1 for Field strength of fundamental and Radiated Spurious Emission TM2 for Duty Cycle

Table 8: Duty Cycle Factor

Frequency [MHz]	Total Time (Ton) [ms]	The duration of one cycle [ms]	Duty Cycle	Duty Cycle Factor [dB]
433.92	15.2	100	15.2%	-16.36

Note: Duty Cycle Factor = 20*Log(Duty Cycle)

Figure 3: Duty Cycle

Duty Cycle

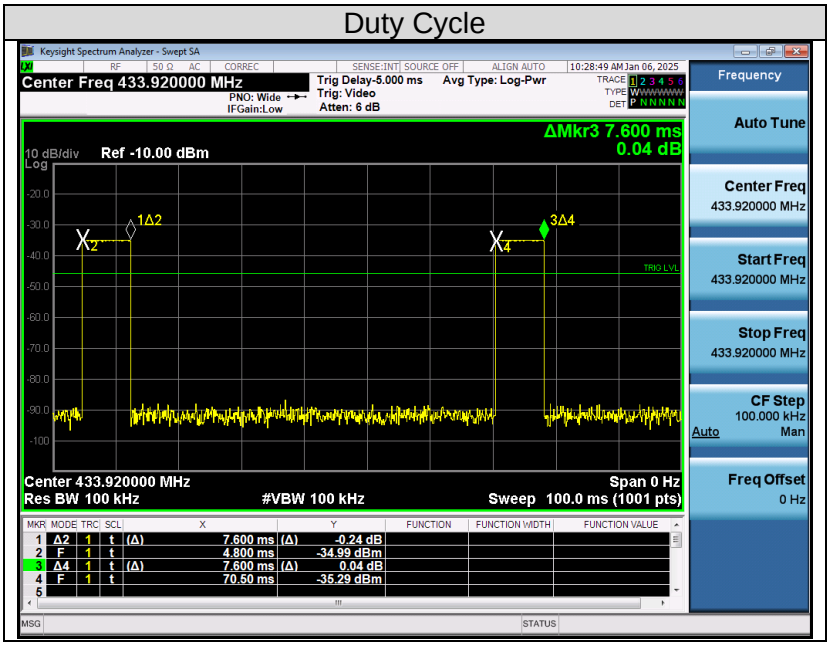
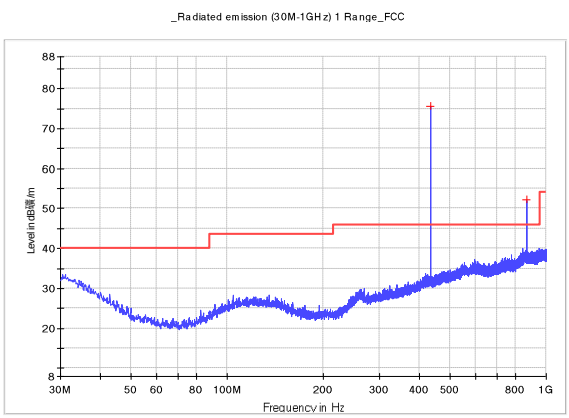
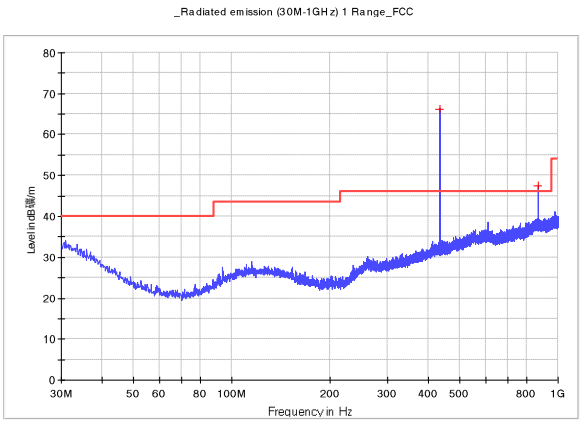


Figure 4: Field strength of fundamental and Radiated Spurious Emission, 30MHz to 1GHz

30MHz to 1GHz, H	30MHz to 1GHz, V
	

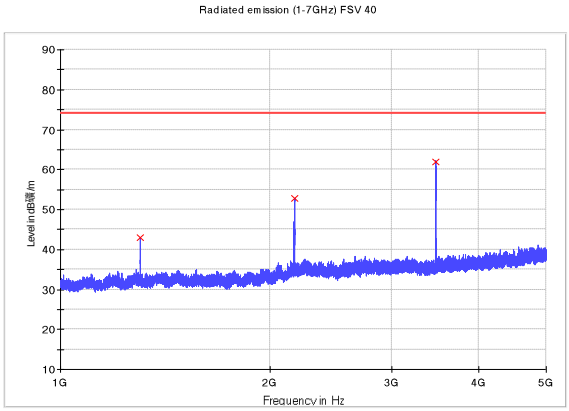
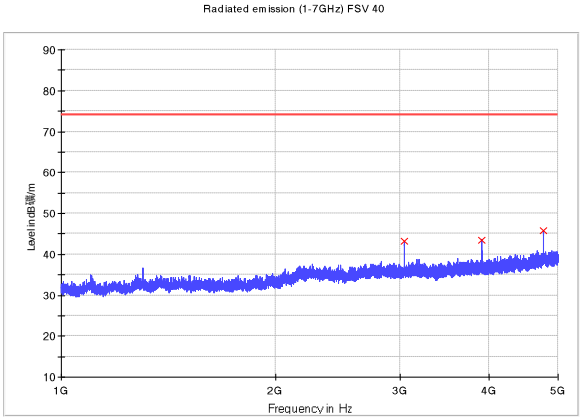
Limit and Margin

Frequency [MHz]	MaxPeak [dBuV/m]	Duty Cycle Factor [dB]	Average [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Type	Pol.
433.883750	75.60	/	/	92.86	17.26	PK	H
433.883750	75.60	-16.36	59.24	72.86	13.62	AV	H
867.837500	52.10	/	/	74.00	21.90	PK	H
867.837500	52.10	-16.36	35.74	54.00	18.26	AV	H

Frequency [MHz]	MaxPeak [dBuV/m]	Duty Cycle Factor [dB]	Average [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Type	Pol.
434.005000	66.30	/	/	92.86	26.56	PK	V
434.005000	66.30	-16.36	49.94	72.86	22.92	AV	V
867.837500	47.40	/	/	74.00	26.60	PK	V
867.837500	47.40	-16.36	31.04	54.00	22.96	AV	V

Note: Average Level= MaxPeak Level + Duty Cycle Factor

Figure 5: Field strength of fundamental and Radiated Spurious Emission, 1GHz to 5GHz

1GHz to 5GHz, H	1GHz to 5GHz, V
	

Limit and Margin

Frequency [MHz]	MaxPeak [dBuV/m]	Duty Cycle Factor [dB]	Average [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Type	Pol.
1301.800000	42.90	/	/	74.00	31.10	PK	H
1301.800000	42.90	-16.36	26.54	54.00	27.46	AV	H
2169.400000	52.70	/	/	74.00	21.30	PK	H
2169.400000	52.70	-16.36	36.34	54.00	17.66	AV	H
3471.500000	62.00	/	/	74.00	12.00	PK	H
3471.500000	62.00	-16.36	45.64	54.00	8.36	AV	H

Frequency [MHz]	MaxPeak [dBuV/m]	Duty Cycle Factor [dB]	Average [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Type	Pol.
3037.500000	43.10	/	/	74.00	30.90	PK	V
3037.500000	43.10	-16.36	26.74	54.00	27.26	AV	V
3905.500000	43.50	/	/	74.00	30.50	PK	V
3905.500000	43.50	-16.36	27.14	54.00	26.86	AV	V
4773.250000	45.70	/	/	74.00	28.30	PK	V
4773.250000	45.70	-16.36	29.34	54.00	24.66	AV	V

Note: Average Level= MaxPeak Level + Duty Cycle Factor

6. List of Tables

7. List of Figures