



FCC LISTED, REGISTRATION
 NUMBER: 2764.01

ISED LISTED REGISTRATION
 NUMBER: 23595-1

Test report No:
 3946ERM.002A2

Test report

USA FCC Part 15.249, 15.209, 22, 24, & 27
CANADA RSS-247, RSS-Gen, RSS-130, RSS-132, RSS-133, & RSS-139

(*) Identification of item tested	Cellular Communicator Module
(*) Trademark	Alarm.com
(*) Model and /or type reference tested	Rev4.9 LTE Communicator Module
Other identification of the product	FCC ID: YL6-143490L IC ID: 9111A-143490L HVIN: ADC-490L-XT HVIN: ADC-490L-SEM
(*) Features	Cellular, Z-Wave, Ethernet
Manufacturer	Alarm.com, Inc 8281 Greensboro Dr, Suite 100 Tyson, VA 22102 USA
Test method requested, standard	USA FCC Part 15.249 10-1-20 Edition: Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, 5725 - 5875 MHz, and 24.0 – 24.25 GHz. USA FCC Part 15.209 10-1-20 Edition: Radiated emission limits; general requirements. FCC Part 22, (10-1-21 Edition) FCC Part 24, (10-1-21 Edition) FCC Part 27, (10-1-21 Edition) CANADA RSS-247 Issue 2, February 2017 CANADA RSS-Gen Issue 5, April 2018 CANADA RSS-130 Issue 2, February 2019 CANADA RSS-132 Issue 3, January 2013 CANADA RSS-133 Issue 6, Amendment 1, January 2018 CANADA RSS-139 Issue 4, September 2022 CANADA RSS-210 Issue 10, December 2019 ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Domingo Galvez EMC&RF Lab Manager
Date of issue	02-23-2023
Report template No	FDT08_23 (*) "Data provided by the client"

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Competences and guarantees

DEKRA Certification Inc. is a testing laboratory accredited by A2LA (The American Association for Laboratory Accreditation), to perform the tests indicated in the Certificate 2764.01

DEKRA Certification Inc. is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Certification Inc. has a calibration and maintenance program for its measurement equipment.

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General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Certification Inc.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Certification Inc. and the Accreditation Bodies.

Uncertainty

Uncertainty (factor $k=2$) was calculated according to the DEKRA Certification internal document PODT000.

Test case	Frequency (MHz)	U (k=2)	Units
Radiated Spurious Emission	30-180	4.27	dB
	180-1000	3.14	dB
	1000-18000	3.30	dB
	18000-40000	3.49	dB

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").
2. Alarm.com LTE Communicator Module with an integrated Z-Wave radio. This device transmits security and alarm signals through the LTE network. It is designed to fit into certain security panels and integrate with the Alarm.com cloud.

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Usage of samples

Samples used for test have been selected by: The client.

Sample S/01 is composed of the following elements, accessories and auxiliary equipment:

Id	Control Number	Description	Manufacturer/Model	Serial N°	Date of Reception	Application
S/01	3858/05	SEM-300	Alarm.com / Rev4.9-03	-	10/26/2022	Element Under Test
S/01	3858/10	USB to TTL Serial cable	FTDI Chip / TTL-232R-3V3	-	10/26/2022	Accessory

Sample S/01, was used for the following test(s): All Radiated test indicated in appendix A.

Sample S/02 is composed of the following elements, accessories and auxiliary equipment:

Id	Control Number	Description	Manufacturer/Model	Serial N°	Date of Reception	Application
S/02	3858/03	XT	Alarm.com / Rev4.9-03	-	10/26/2022	Element Under Test
S/02	3858/10	USB to TTL Serial cable	FTDI Chip / TTL-232R-3V3	-	10/26/2022	Accessory

Sample S/02, was used for the following test(s): All Radiated test indicated in appendix A.

Test sample description

Test Sample description (compulsory information for EMC and RF testing services)

Ports..... :	Port name and description		Cable				
			Specified length [m]	Attached during test	Shielded	Coupled to patient	
	Ethernet			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Power and data IO			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Supplementary information to the ports..... :	No Data Provided						
Rated power supply	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	<input type="checkbox"/>	AC: 120-240 – Input AC adapter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	AC:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	DC: 12Vdc					
<input type="checkbox"/>	DC:						
Rated Power	No Data Provided						
Clock frequencies..... :	32.768 kHz, 24 MHz, 50 MHz, 54 MHz, 132 MHz						
Other parameters	No Data Provided						
Software version	191						
Hardware version	Rev4.9						
Dimensions in cm (W x H x D)	No Data Provided						
Mounting position	<input type="checkbox"/>	Table top equipment					
	<input checked="" type="checkbox"/>	Wall/Ceiling mounted equipment					
	<input type="checkbox"/>	Floor standing equipment					
	<input type="checkbox"/>	Hand-held equipment					
	<input type="checkbox"/>	Other: Plugged into wall outlet					

Modules/parts.....:	Module/parts of test item	Type	Manufacturer
	LE910C1-NF	Cellular	Telit
	ME910G1-WW	Cellular	Telit
	ZM5202	Z-Wave	Silicon Labs
Accessories (not part of the test item)	Description	Type	Manufacturer
	No Data Provided		
Documents as provided by the applicant.....:	Description	File name	Issue date
	Declaration Equipment	FDT30_18 Declaration Equipment Data_Rev4.9_Final	09/30/2022
Copy of marking plate:			
NO MARKING PLATE FOUND			

Identification of the client

Alarm.com, Inc
 8281 Greensboro Dr, Suite 100
 Tyson, VA 22102
 USA

Testing period and place

Test Location	DEKRA Certification Inc.
Date (start)	11-16-2022
Date (finish)	11-18-2022

Document history

Report number	Date	Description
3946ERM.002	12-07-22	First release
3946ERM.002A1	02-18-23	Second release. Add HVIN reference number in the cover page. This modification of the test report cancels and replaces the test report 3946ERM.002
3946ERM.002A2	02-23-23	Third release. Add S/02 and measurements accordingly in Annex A. This modification of the test report cancels and replaces the test report 3946ERM.002a1

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the semi anechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

Remarks and comments

- The tests have been performed by the technical personnel: Qi Zhang and Koji Nishimoto.

Testing verdicts

Not applicable :	N/A
Pass :	P
Fail :	F
Not measured :	N/M

Summary

FCC PART 15.249 PARAGRAPH / RSS-210 (Z-wave) Requirement – Test case	Verdict	Remark
FCC 2.1049 / RSS-Gen 6.7 99% Occupied Bandwidth	N/M	Refer 1
FCC 15.249 (a) / RSS-210 B.10 (a) Field Strength of fundamental	N/M	Refer 1
FCC 15.249 (d) / RSS-210 B.10 (b) Emission limitations radiated (Transmitter)	Pass	N/A
<u>Supplementary information and remarks:</u>		
1. Test not performed. Test is not requested		

FCC PART 22/ IC RSS-132 PARAGRAPH - Public Mobile Services Requirement – Test case	Verdict	Remark
FCC 2.1046 & 22.913/ RSS-132 Clause 5.4 RF Output power	N/M	Refer 1
FCC 2.1047 /RSS-132 Clause 5.2 Modulation characteristics	N/M	Refer 1
FCC 2.1055 & 22.355/ RSS-132 Clause 5.3 Frequency stability	N/M	Refer 1
FCC 2.1049 Occupied Bandwidth	N/M	Refer 1
FCC 2.1051 & 22.917/ RSS-132 Clause 5.5 Spurious emissions at antenna terminals	N/M	Refer 1
FCC 22.917/ RSS-132 Clause 5.5 Radiated Emissions	Pass	N/A
<u>Supplementary information and remarks:</u>		
1. Test not performed. Test is not requested		

FCC PART 24/ IC RSS-133 PARAGRAPH - Personal Communications Services Requirement – Test case	Verdict	Remark
FCC 24.232/ RSS-133 Clause 6.4 RF Output power	N/M	Refer 1
FCC 2.1047/ RSS-133 Clause 6.2 Modulation characteristics	N/M	Refer 1
FCC 24.235/ RSS-133 Clause 6.3 Frequency stability	N/M	Refer 1
FCC 2.1049 Occupied Bandwidth	N/M	Refer 1
FCC 24.238/ RSS-133 Clause 6.5 Spurious emissions at antenna terminals	N/M	Refer 1
FCC 24.238/ RSS-133 Clause 6.5 Radiated Emissions	Pass	N/A
<u>Supplementary information and remarks:</u>		
1. Test not performed. Test is not requested		

FCC PART 27/ IC RSS-139/ IC RSS-130 PARAGRAPH – Miscellaneous Wireless Communications Services Requirement – Test case	Verdict	Remark
FCC 27.50/ RSS-139 Clause 6.5/ RSS-130 Clause 4.4 RF Output power	N/M	Refer 1
FCC 2.1047/ RSS-139 Clause 6.2/ RSS-130 Clause 4.1 Modulation characteristics	N/M	Refer 1
FCC 27.54/ RSS-139 Clause 6.4/ RSS-130 Clause 4.3 Frequency stability	N/M	Refer 1
FCC 2.1049 Occupied Bandwidth	N/M	Refer 1
FCC 27.53/ RSS-139 Clause 6.6/ RSS-130 Clause 4.6 Spurious emissions at antenna terminals	N/M	Refer 1
FCC 27.53/ RSS-139 Clause 6.6/ RSS-130 Clause 4.6 Radiated Emissions	Pass	N/A
<u>Supplementary information and remarks:</u>		
1. Test not performed. Test is not requested		

List of equipment used during the test

Radiated Measurements

CONTROL NUMBER	DESCRIPTION	MANUFACTURER	MODEL	LAST CALIBRATION	NEXT CALIBRATION
1461	RF pre-amplifier	Bonn Elektronik	BLMA0118-4A	2022/06	2024/06
1012	EMI Test Receiver	Rohde & Schwarz	ESR26	2022/04	2024/04
1014	FSV40 Signal Analyzer 40GHz	Rohde & Schwarz	FSV40	2021/05	2023/05
1056	3116C Double-Ridged Waveguide Horn Antennas	ETS Lindgren	3116C	2020/01	2023/01
1057	Double-ridge Waveguide Horn antenna	ETS Lindgren	3115	2020/06	2023/06
1065	Biconical Log antenna	ETS Lindgren	3142E	2020/08	2023/08
1111	Ethernet SNMP T Thermometer	HW Group	HWg-STE Plain	2022/10	2024/10
1179	Semi anechoic Absorber Lined Chamber	Frankonia	SAC 3 plus "L"	N/A	N/A
1314	Wireless Measurement Software R&S EMC32	Rohde & Schwarz	N/A	N/A	N/A

Appendix A: Test results (Multi-transmitter)

Appendix A Content

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PRODUCT INFORMATION

Information	Description
Modulation	Z-Wave: FSK, GFSK Cellular: QPSK, 16QAM
Operation mode 1: Z-wave and 2 Cellular antennas separately	
- Operating Frequency Range	Z-Wave: 908.4 - 916 MHz Band 12 (TX/RX): 699~716MHz / 729~746MHz Band 25 (TX/RX): 1850~1915MHz / 1930~1995MHz Band 26 (TX/RX): 814~849MHz / 859~894MHz Band 66 (TX/RX): 1710~1780MHz / 2110~2200MHz
- Nominal Channel Bandwidth	Z-Wave: 100 kHz Cellular: 1.4 / 3 / 5 / 10 / 15 / 20 MHz
- RF Output Power	Z-Wave (Concord): -9 dBm Z-Wave (XT): -6 dBm Z-Wave (SEM): -6 dBm Cellular: 23.87 dBm
Antenna type	Z-Wave: Copper Wire Cellular: Primary Cell Antenna, and Diversity Cell Antenna (LE910C1-NF modules only)
Antenna gain	Z-Wave (Concord): -0.1 dBi Peak Z-Wave (XT): -0.32 dBi Peak Z-Wave (SEM): -0.09 dBi Peak Cellular: 2.14 dBi
Nominal Voltage	
- Supply Voltage	12 Vdc
- Type of power source	AC/DC Adapter
Equipment type	Z-Wave and Cellular

DESCRIPTION OF TEST CONDITIONS

TEST CONDITIONS	DESCRIPTION															
TC#01 ⁽¹⁾	<p>Power supply (V): DC 12 Vdc</p> <p>Test Frequencies for Radiated tests:</p> <table border="1"> <thead> <tr> <th>Technology</th> <th>Tested Frequency (MHz)</th> <th>BW (MHz)</th> <th>Modulation</th> <th>Mode</th> </tr> </thead> <tbody> <tr> <td>Z-Wave</td> <td>916</td> <td>0.1</td> <td>GFSK</td> <td>-</td> </tr> <tr> <td>Cellular (LTE)</td> <td>714.5</td> <td>3</td> <td>QPSK</td> <td>LTE Band 12</td> </tr> </tbody> </table>	Technology	Tested Frequency (MHz)	BW (MHz)	Modulation	Mode	Z-Wave	916	0.1	GFSK	-	Cellular (LTE)	714.5	3	QPSK	LTE Band 12
Technology	Tested Frequency (MHz)	BW (MHz)	Modulation	Mode												
Z-Wave	916	0.1	GFSK	-												
Cellular (LTE)	714.5	3	QPSK	LTE Band 12												
TC#02 ⁽¹⁾	<p>Power supply (V): DC 12 Vdc</p> <p>Test Frequencies for Radiated tests:</p> <table border="1"> <thead> <tr> <th>Technology</th> <th>Tested Frequency (MHz)</th> <th>BW (MHz)</th> <th>Modulation</th> <th>Mode</th> </tr> </thead> <tbody> <tr> <td>Z-Wave</td> <td>916</td> <td>0.1</td> <td>GFSK</td> <td>-</td> </tr> <tr> <td>Cellular (LTE)</td> <td>1860</td> <td>20</td> <td>QPSK</td> <td>LTE Band 25</td> </tr> </tbody> </table>	Technology	Tested Frequency (MHz)	BW (MHz)	Modulation	Mode	Z-Wave	916	0.1	GFSK	-	Cellular (LTE)	1860	20	QPSK	LTE Band 25
Technology	Tested Frequency (MHz)	BW (MHz)	Modulation	Mode												
Z-Wave	916	0.1	GFSK	-												
Cellular (LTE)	1860	20	QPSK	LTE Band 25												
TC#03 ⁽¹⁾	<p>Power supply (V): DC 12 Vdc</p> <p>Test Frequencies for Radiated tests:</p> <table border="1"> <thead> <tr> <th>Technology</th> <th>Tested Frequency (MHz)</th> <th>BW (MHz)</th> <th>Modulation</th> <th>Mode</th> </tr> </thead> <tbody> <tr> <td>Z-Wave</td> <td>916</td> <td>0.1</td> <td>GFSK</td> <td>-</td> </tr> <tr> <td>Cellular (LTE)</td> <td>821.5</td> <td>15</td> <td>QPSK</td> <td>LTE Band 26</td> </tr> </tbody> </table>	Technology	Tested Frequency (MHz)	BW (MHz)	Modulation	Mode	Z-Wave	916	0.1	GFSK	-	Cellular (LTE)	821.5	15	QPSK	LTE Band 26
Technology	Tested Frequency (MHz)	BW (MHz)	Modulation	Mode												
Z-Wave	916	0.1	GFSK	-												
Cellular (LTE)	821.5	15	QPSK	LTE Band 26												
TC#04 ⁽¹⁾	<p>Power supply (V): DC 12 Vdc</p> <p>Test Frequencies for Radiated tests:</p> <table border="1"> <thead> <tr> <th>Technology</th> <th>Tested Frequency (MHz)</th> <th>BW (MHz)</th> <th>Modulation</th> <th>Mode</th> </tr> </thead> <tbody> <tr> <td>Z-Wave</td> <td>916</td> <td>0.1</td> <td>GFSK</td> <td>-</td> </tr> <tr> <td>Cellular (LTE)</td> <td>1711.5</td> <td>3</td> <td>QPSK</td> <td>LTE Band 66</td> </tr> </tbody> </table>	Technology	Tested Frequency (MHz)	BW (MHz)	Modulation	Mode	Z-Wave	916	0.1	GFSK	-	Cellular (LTE)	1711.5	3	QPSK	LTE Band 66
Technology	Tested Frequency (MHz)	BW (MHz)	Modulation	Mode												
Z-Wave	916	0.1	GFSK	-												
Cellular (LTE)	1711.5	3	QPSK	LTE Band 66												
<p>Each test was performed with the equipment transmitting with Z-Wave, and Cellular radios simultaneously. These measurements have been performed in order to check the impact of the multi-transmitter of all radio interfaces that can be transmitting simultaneously.</p>																

Note (1): The following tables and plots show the results for the worst case in Z-Wave, and Cellular.

EMISSION LIMITATIONS RADIATED (TRANSMITTER)

LIMITS:	Product standard:	FCC Part 15.249, 15407, 22 / 24 / 27 RSS-133, RSS-139, RSS-130, RSS 210
	Test standard:	FCC 22.917 / 24.238 / 27.53 RSS-132 Clause 5.5 / RSS-133 Clause 6.5 / RSS-139 Clause 6.6

LIMITS

According to specification, the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log(P)$ dB. P in watts.

At P_o transmitting power, the specified minimum attenuation becomes $43 + 10 \log(P_o)$, and the level in dBm relative P_o becomes:

$$P_o \text{ (dBm)} - [43 + 10 \log(P_o \text{ in mwatts}) - 30] = -13 \text{ dBm}$$

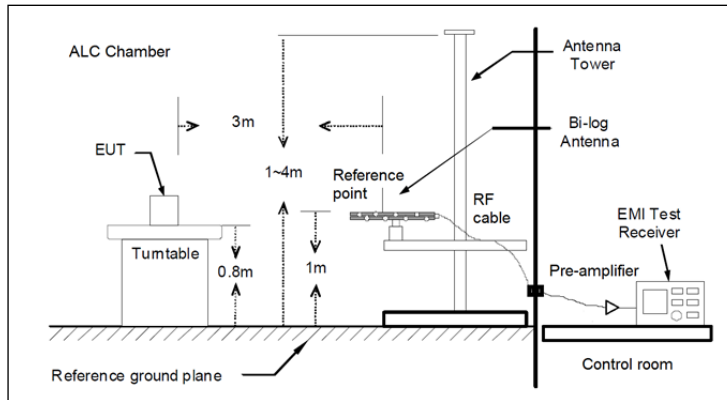
TEST SETUP

The measurement was performed with the EUT inside an anechoic chamber. The spectrum was scanned from 30 MHz to at least the 10th harmonic of the highest frequency generated within the equipment.

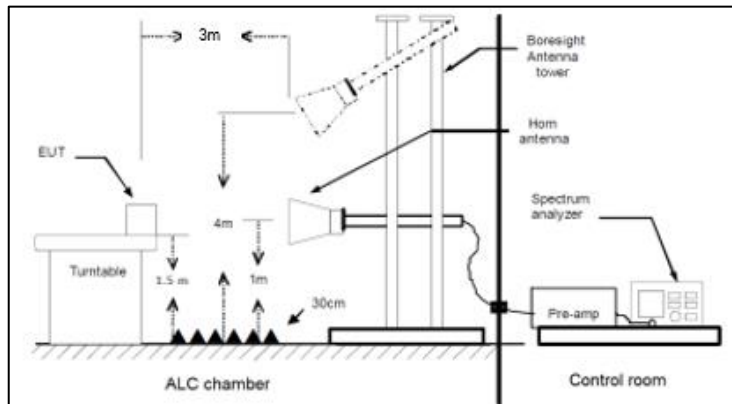
The EUT was placed on a non-conductive stand at a 3-meter distance from the measuring antenna for measurements below 1 GHz and at 1 m distance for measurements above 1 GHz.

Detected emissions were maximized at each frequency by rotating the EUT and adjusting the measuring antenna height and polarization. The maximum meter reading was recorded.

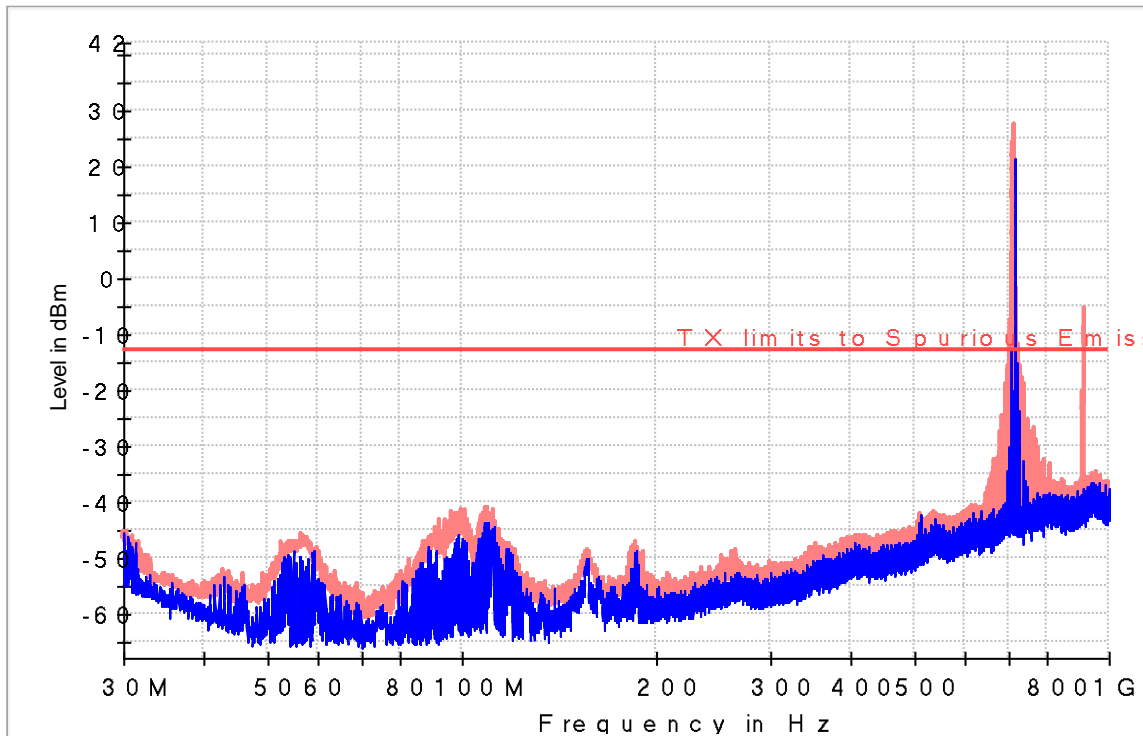
Radiated measurements < 1GHz



Radiated measurements setup f > 1-18 GHz



TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#01
TEST RESULTS :	30-1000 MHz

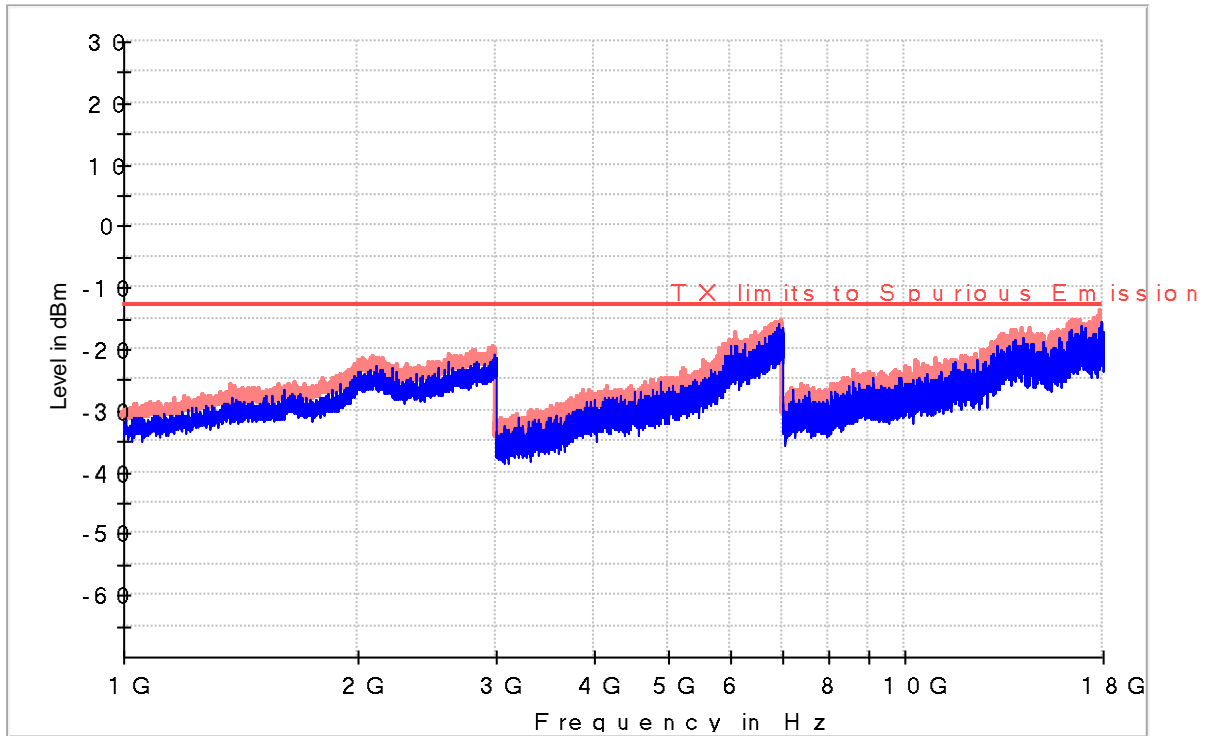


— PK+_MAXH — PK+_CLRWR — TX limits to Spurious Emission

Frequency (MHz)	PK+_CLRWR (dBm)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
56.545667	-64.5	-45.8	V	32.8	-13.0	
109.701667	-54.5	-41.1	V	28.1	-13.0	
510.053000	-42.3	-42.3	V	29.3	-13.0	
713.203333	-42.3	27.4	H	---	---	Cellular Uplink
915.933333	-40.8	-5.6	H	---	---	Z-wave fundamental

TEST RESULTS (Cont.):

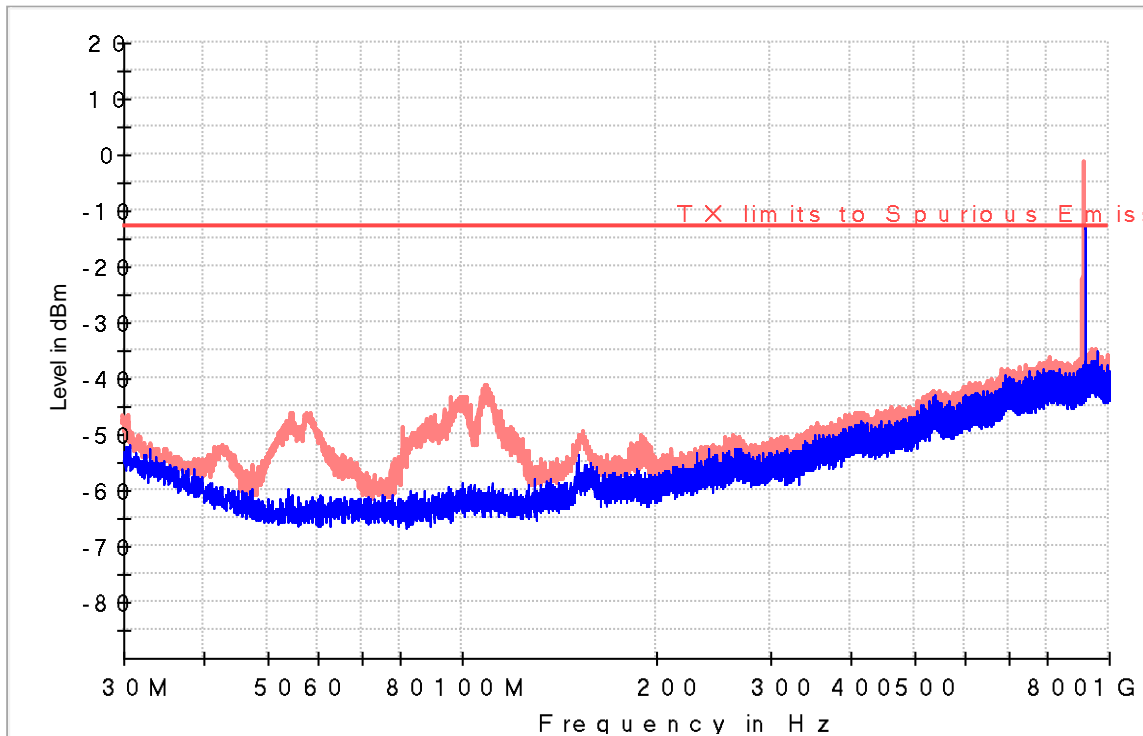
1-18 GHz



— PK+_MAXH — PK+_CLRWR — TX limits to Spurious Emission

Frequency (MHz)	PK+_CLRWR (dBm)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)
2982.500000	-23.1	-19.7	H	6.7	-13.0
6098.000000	-23.2	-17.4	V	4.4	-13.0
17843.500000	-19.6	-14.0	H	1.0	-13.0

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#02
TEST RESULTS :	30-1000 MHz

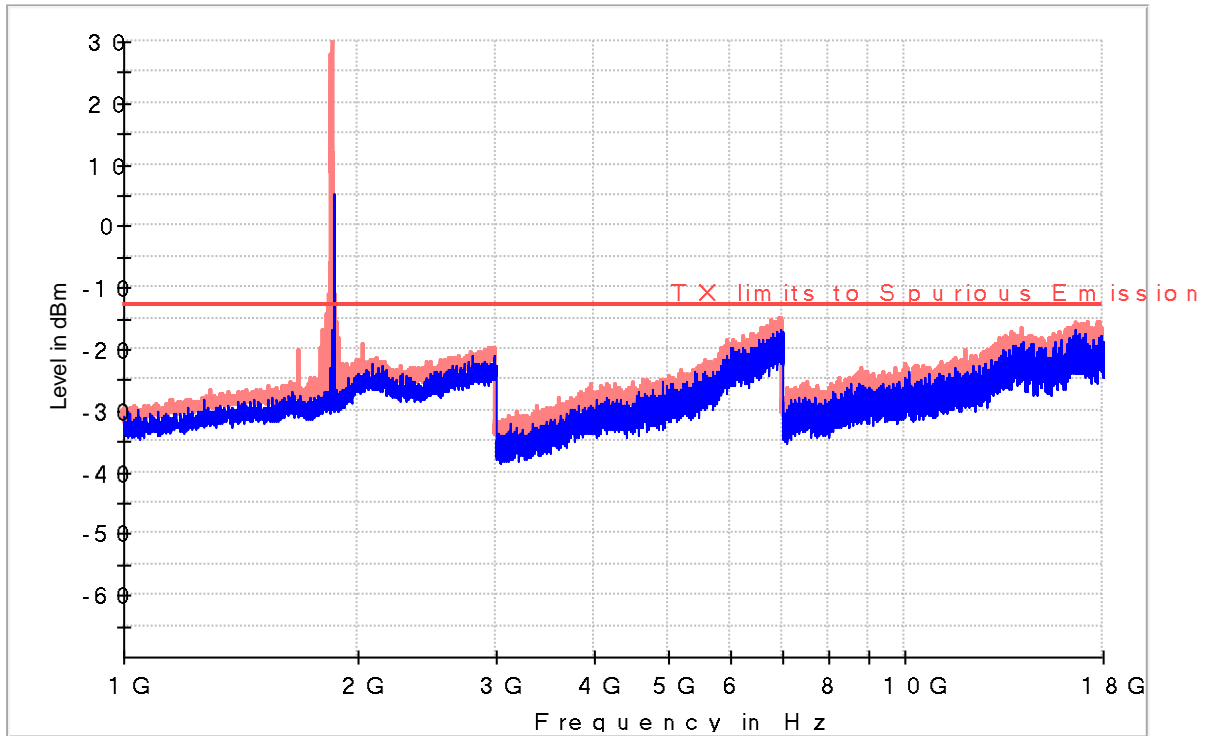


— PK+_MAXH — PK+_CLRWR — TX limits to Spurious Emission

Frequency (MHz)	PK+_CLRWR (dBm)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
55.090667	-63.4	-46.4	V	33.4	-13.0	
96.251000	-62.7	-43.7	V	30.7	-13.0	
108.667000	-63.2	-41.4	V	28.4	-13.0	
816.023333	-41.2	-36.5	H	23.5	-13.0	
915.998000	-36.8	-1.5	H	---	---	Z-wave fundamental

TEST RESULTS (Cont.):

1-18 GHz

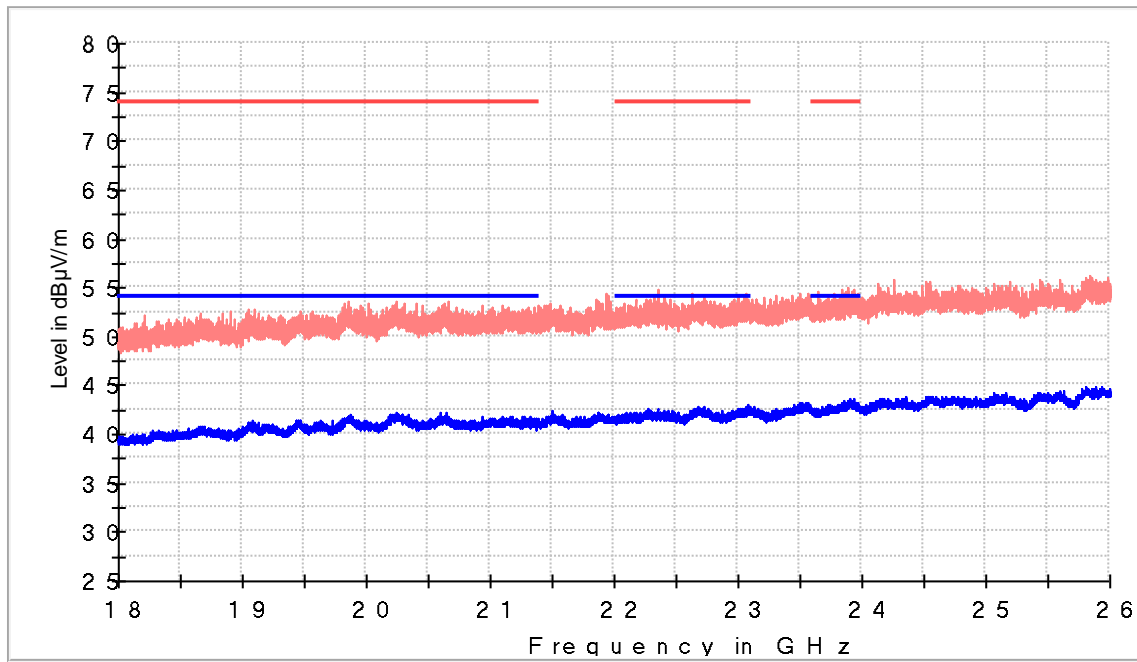


— PK+_MAXH — PK+_CLRWR — TX limits to Spurious Emission

Frequency (MHz)	PK+_CLRWR (dBm)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
1856.500000	-27.9	36.8	H	---	-13.0	Cellular Uplink
6930.000000	-19.7	-15.2	V	2.2	-13.0	
17772.000000	-19.6	-15.8	H	2.8	-13.0	

TEST RESULTS (Cont.):

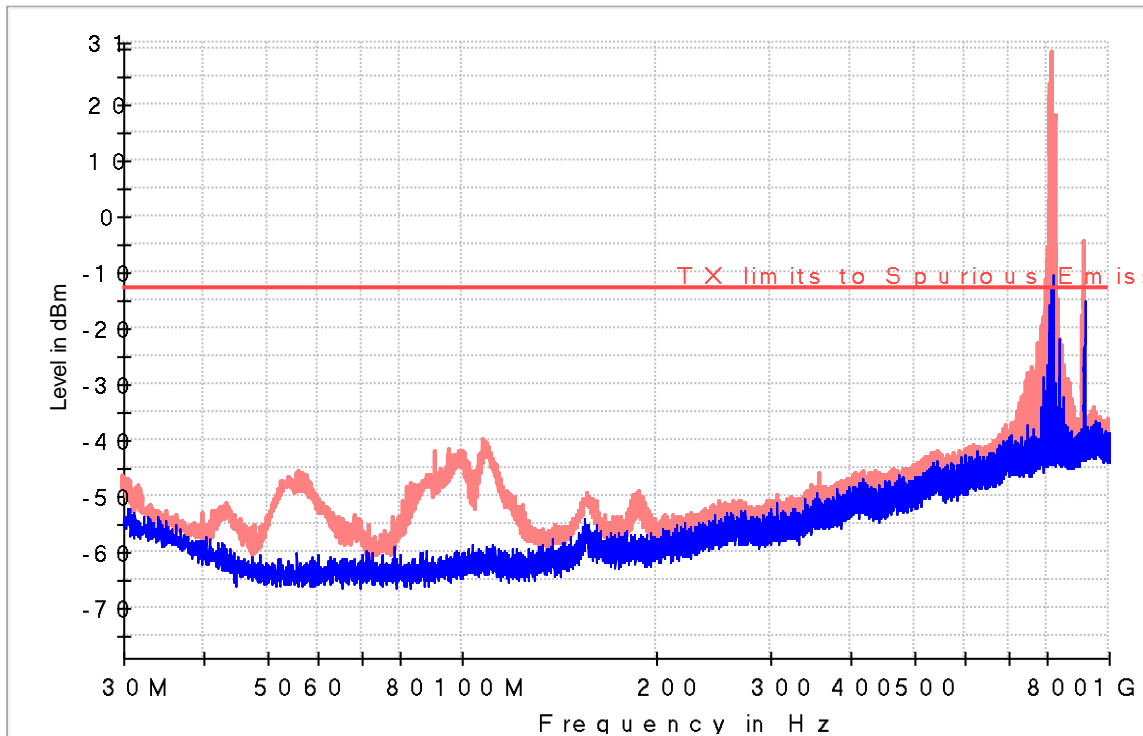
18-26 GHz



- AVG_MAXH
- PK+_MAXH
- TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restrict
- TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restrict

Frequency (MHz)	PK+_CLRWR (dBm)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)
23892.750000	55.2	43.5	V	10.5	54.0

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#03
TEST RESULTS :	30-1000 MHz

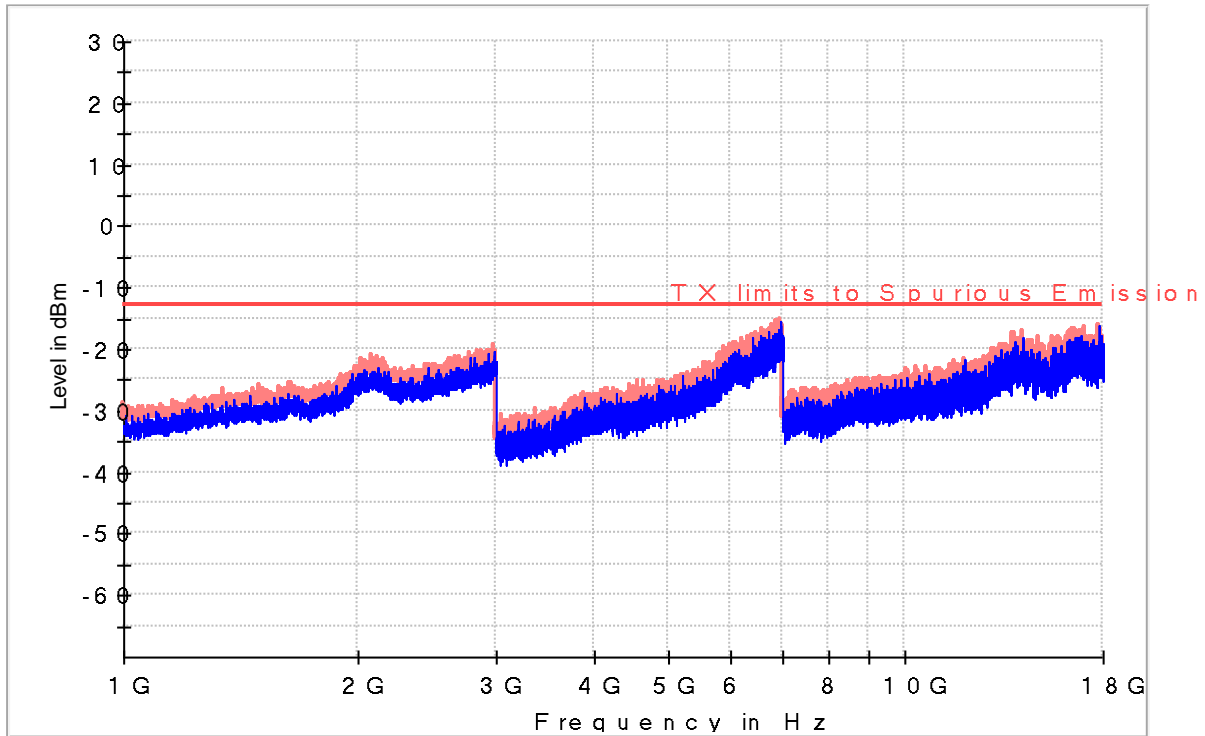


— PK+_MAXH — PK+_CLRWR — TX limits to Spurious Emission

Frequency (MHz)	PK+_CLRWR (dBm)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
56.222333	-63.8	-45.7	V	32.7	-13.0	
90.916000	-63.3	-42.3	V	29.3	-13.0	
108.052667	-63.8	-40.2	V	27.2	-13.0	
818.771667	-41.4	29.1	H	---	---	Cellular Uplink
916.127333	-38.9	-4.9	V	---	---	Z-wave fundamental

TEST RESULTS (Cont.):

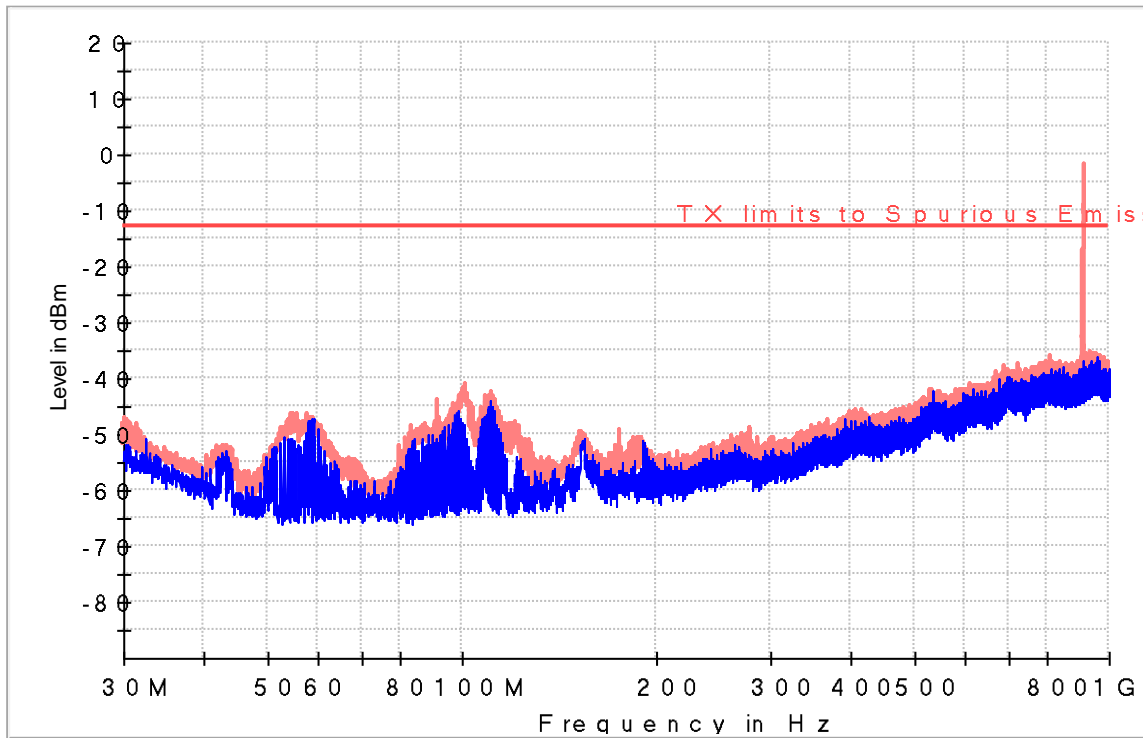
1-18 GHz



— PK+_MAXH — PK+_CLRWR — TX limits to Spurious Emission

Frequency (MHz)	PK+_CLRWR (dBm)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)
2991.500000	-21.9	-19.4	H	6.4	-13.0
6929.500000	-18.1	-15.2	V	2.2	-13.0
17778.000000	-16.0	-16.0	V	3.0	-13.0

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#04
TEST RESULTS :	30-1000 MHz

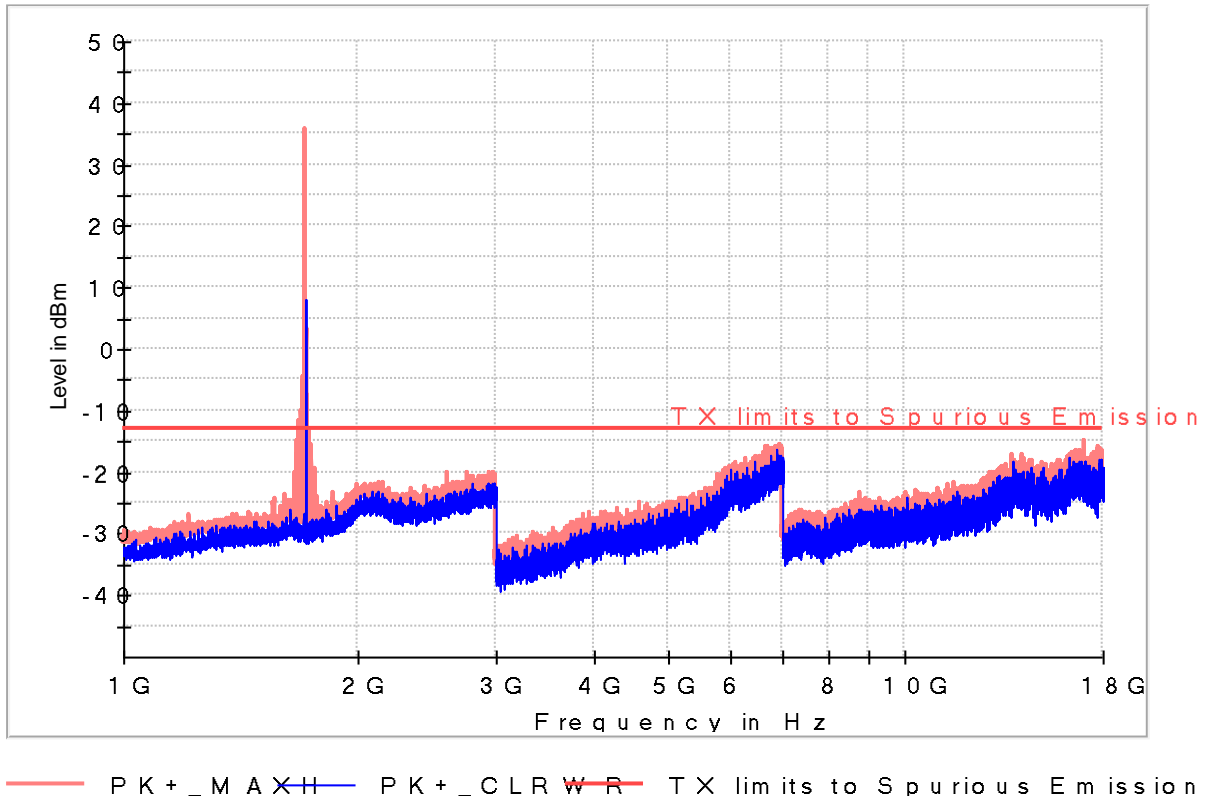


— PK+_MAXH — PK+_CLRWR — TX limits to Spurious Emission

Frequency (MHz)	PK+_CLRWR (dBm)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
92.112333	-63.7	-43.8	V	30.8	-13.0	
101.780000	-61.5	-41.0	V	28.0	-13.0	
723.323667	-42.3	-37.4	H	24.4	-13.0	
815.894000	-41.7	-36.2	V	23.2	-13.0	
916.095000	-39.4	-1.6	H	---	---	Z-wave fundamental

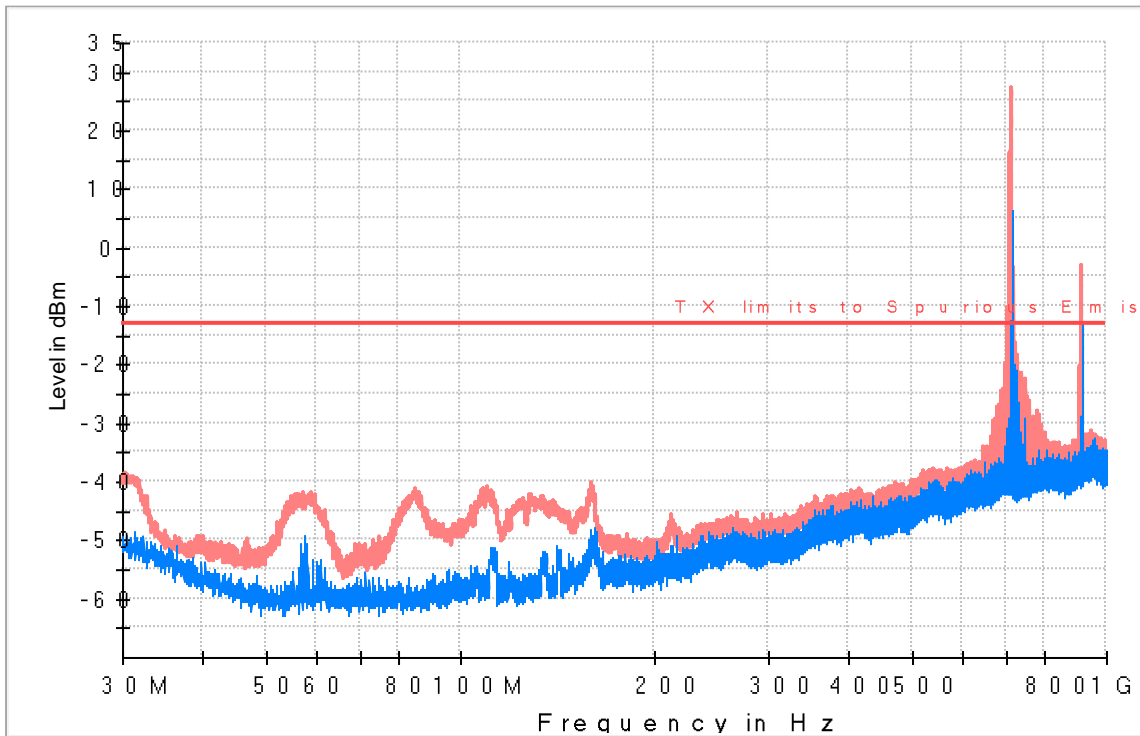
TEST RESULTS (Cont.):

1-18 GHz



Frequency (MHz)	PK+_CLRWR (dBm)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
1712.000000	-31.5	35.8	H	---	-13.0	Cellular Uplink
6931.500000	-18.9	-15.5	V	2.5	-13.0	
17104.500000	-23.1	-14.9	H	1.9	-13.0	

TESTED SAMPLES:	S/02
TESTED CONDITIONS MODES:	TC#01
TEST RESULTS :	30-1000 MHz

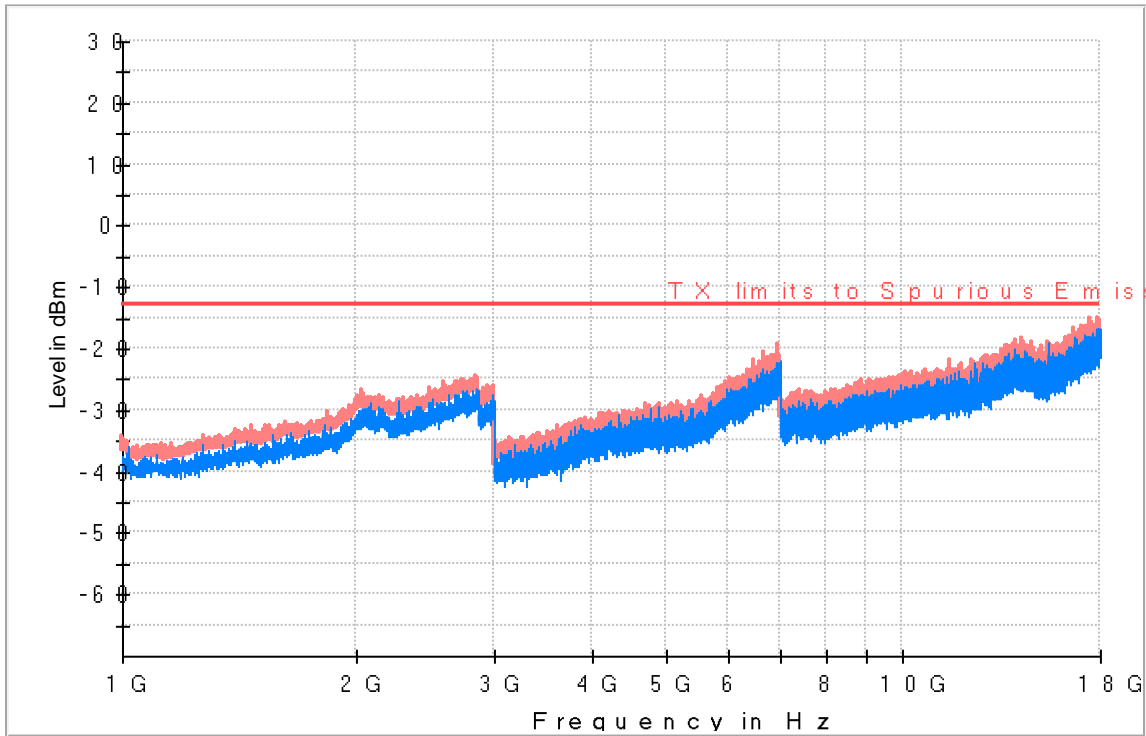


— PK+_MAXH — PK+_CLRWR — TX limits to Spurious Emission

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Azimuth (deg)	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
30.323333	-38.6	V	31.0	25.6	-13.0	
57.192333	-41.9	V	-133.0	28.9	-13.0	
85.031333	-42.1	V	-133.0	29.1	-13.0	
108.602333	-41.4	V	93.0	28.4	-13.0	
160.432667	-40.4	V	-180.0	27.4	-13.0	
417.288667	-41.3	V	-180.0	28.3	-13.0	
609.866000	-37.4	V	-180.0	24.4	-13.0	
715.078667	27.1	H	-71.0	---	---	Cellular Uplink
915.998000	-3.1	H	-51.0	---	---	Z-wave

TEST RESULTS (Cont.):

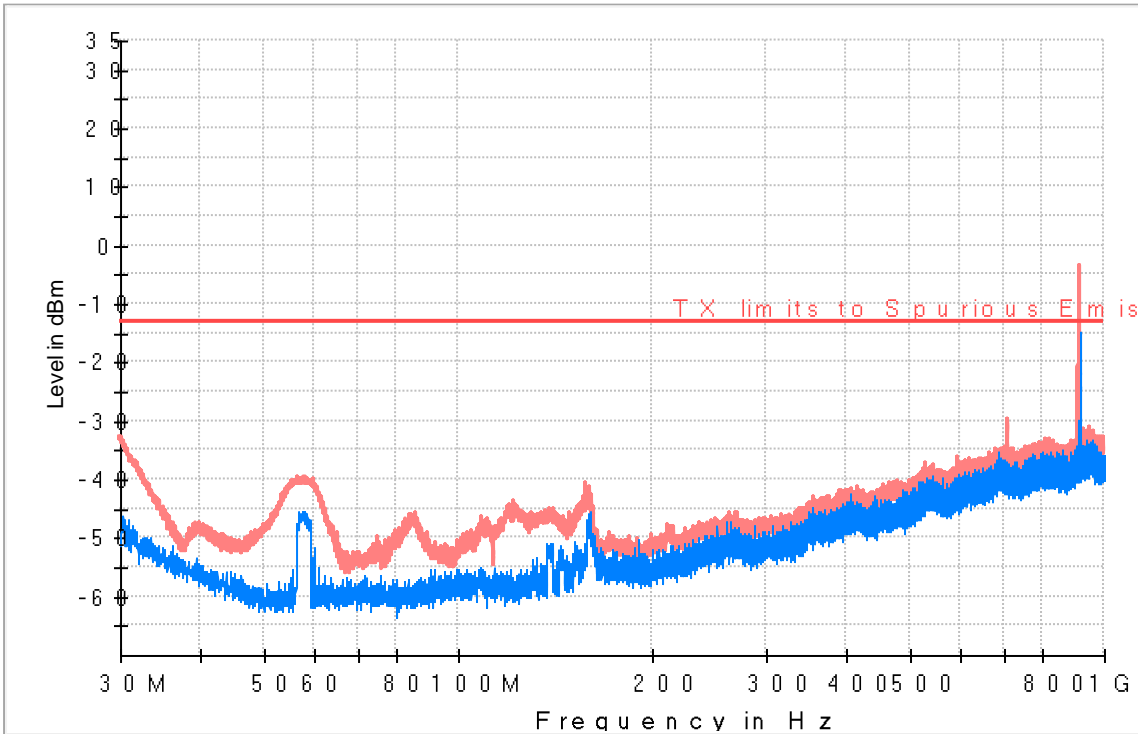
1-18 GHz



— PK+_MAXH — PK+_CLRW — TX limits to Spurious Emission

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)
2033.500000	-26.8	H	13.8	-13.0
6946.000000	-19.3	H	6.3	-13.0
17925.500000	-15.2	H	2.2	-13.0

TESTED SAMPLES:	S/02
TESTED CONDITIONS MODES:	TC#02
TEST RESULTS :	30-1000 MHz

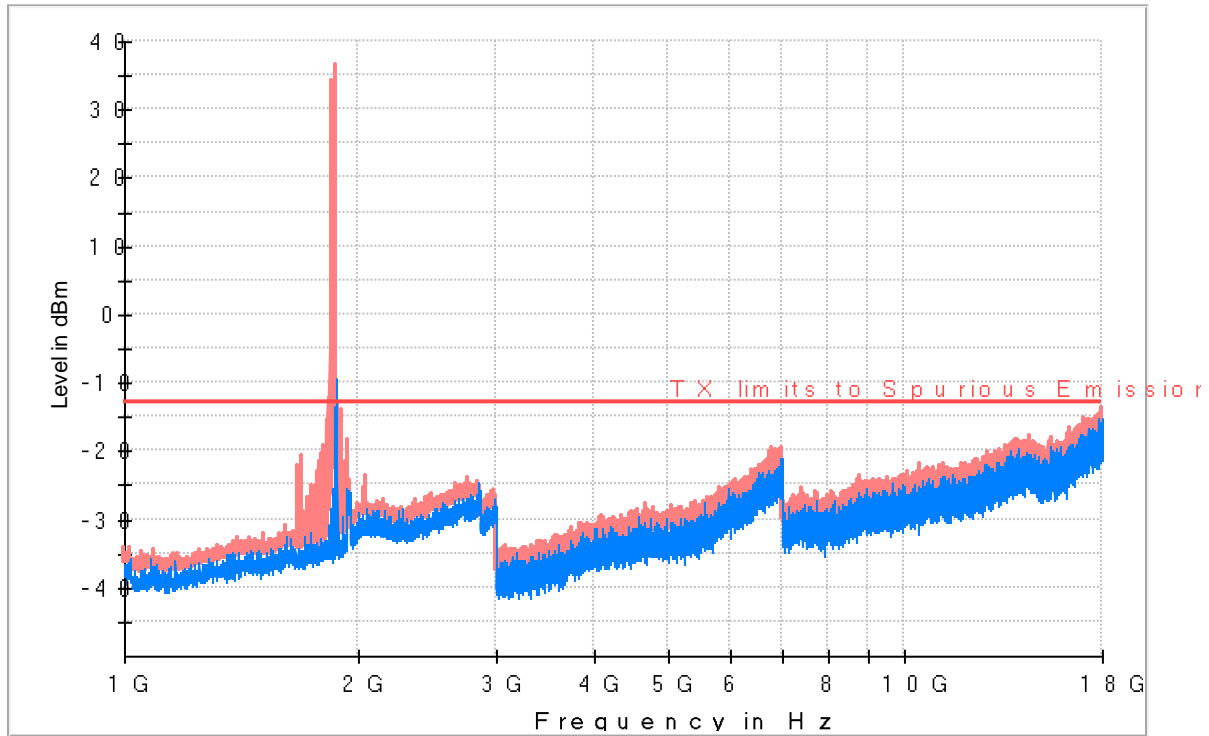


— PK+_MAXH — PK+_CLRW R — TX limits to Spurious Emission

Frequency (MHz)	PK+_MAXH (dBm)	PoI	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
30.000000	-32.7	V	19.7	-13.0	
57.774333	-40.0	V	27.0	-13.0	
158.298667	-40.7	V	27.7	-13.0	
415.187000	-41.4	V	28.4	-13.0	
593.085000	-36.3	V	23.3	-13.0	
710.713667	-29.6	H	16.6	-13.0	
916.030333	-3.6	H	---	---	Z-Wave Fundamental

TEST RESULTS (Cont.):

1-18 GHz

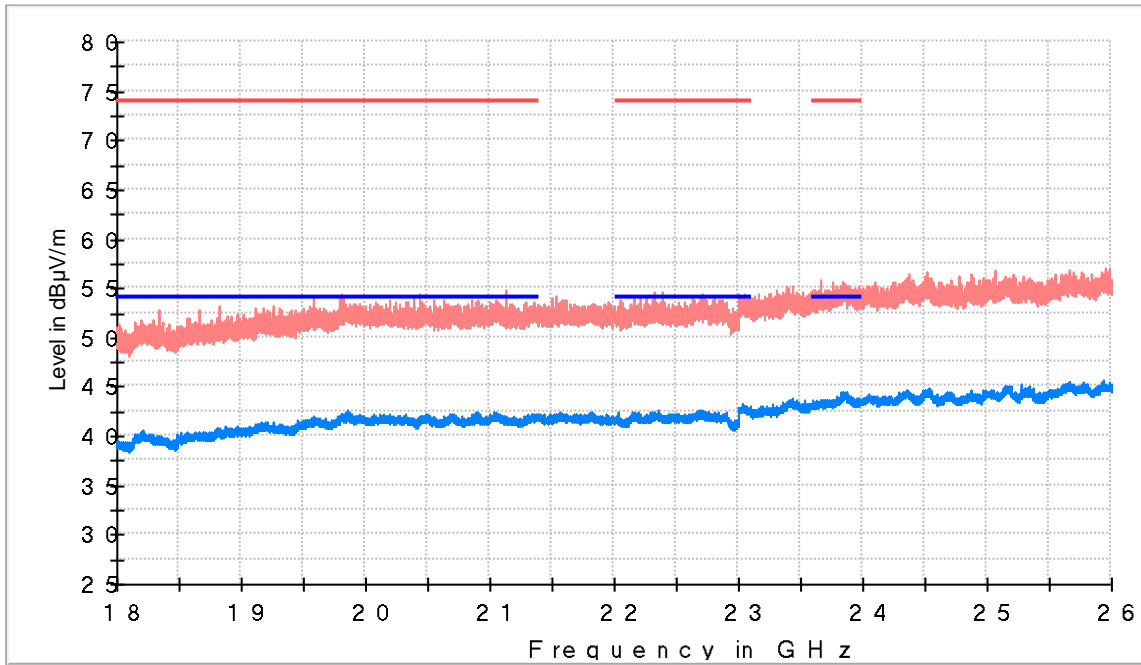


— PK+_MAXH — PK+_CLRWR — TX limits to Spurious Emission

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
1856.500000	36.4	H	---	---	Cellular Uplink
6930.000000	-19.7	V	6.7	-13.0	
17772.000000	-13.7	H	0.7	-13.0	

TEST RESULTS (Cont.):

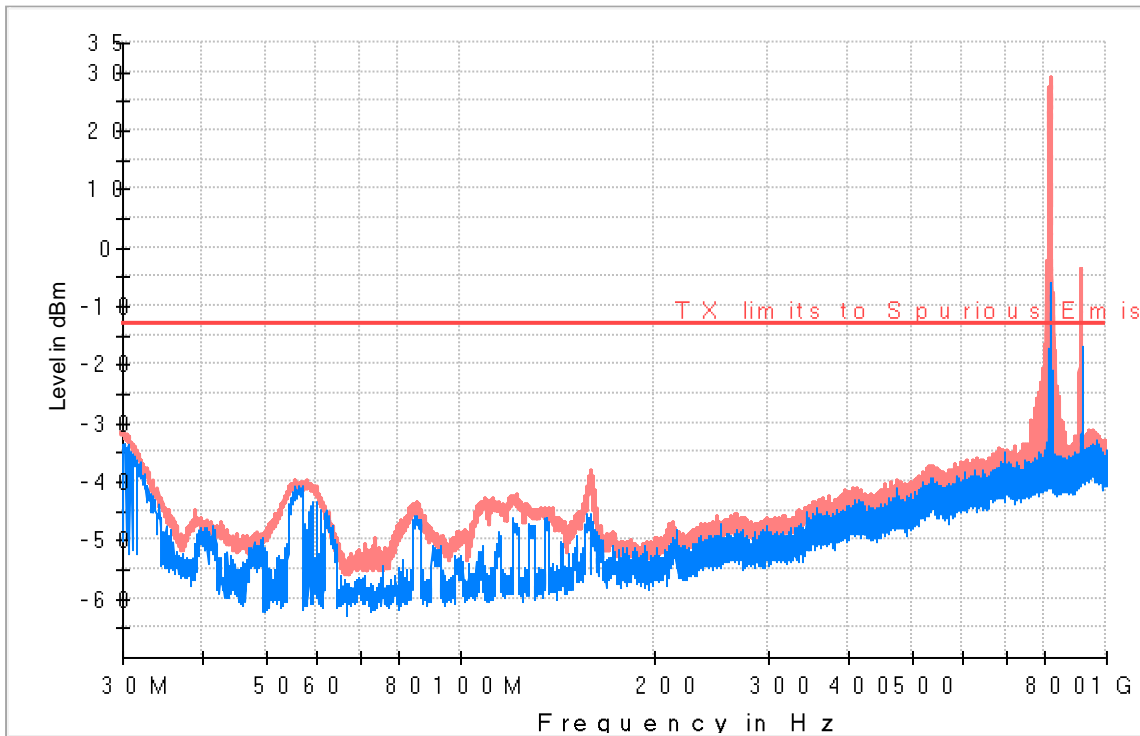
18-26 GHz



- AVG_MAXH
- PK+_MAXH
- TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restrict
- TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restrict

Frequency (MHz)	PK+_MAXH (dBuV/m)	AVG_MAXH (dBuV/m)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
23844.000000	53.9	44.5	H	9.5	54.0

TESTED SAMPLES:	S/02
TESTED CONDITIONS MODES:	TC#03
TEST RESULTS :	30-1000 MHz

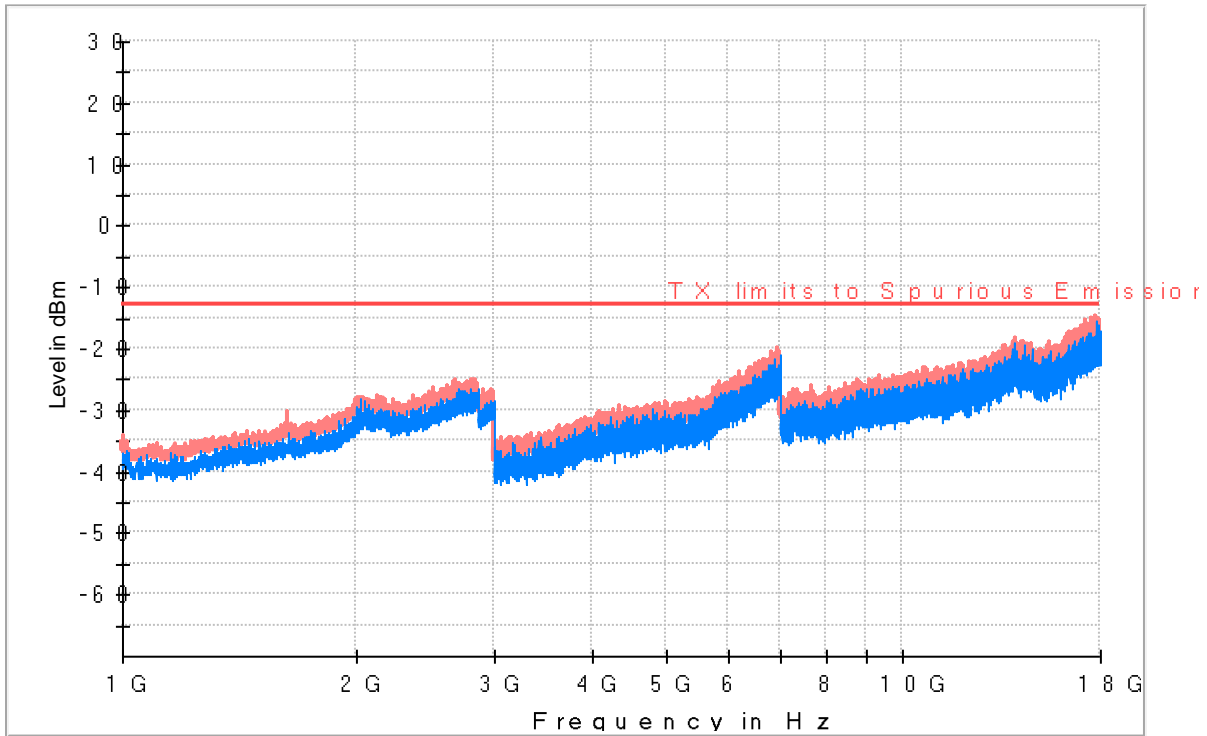


— PK+_MAXH — PK+_CLRW — TX limits to Spurious Emission

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
30.000000	-31.6	V	18.6	-13.0	30.000000
58.097667	-40.1	V	27.1	-13.0	58.097667
159.915333	-38.2	V	25.2	-13.0	159.915333
413.117667	-41.3	H	28.3	-13.0	413.117667
609.510333	-36.7	H	23.7	-13.0	609.510333
822.554667	29.0	H	---	---	822.554667
915.901000	-4.1	H	---	---	915.901000

TEST RESULTS (Cont.):

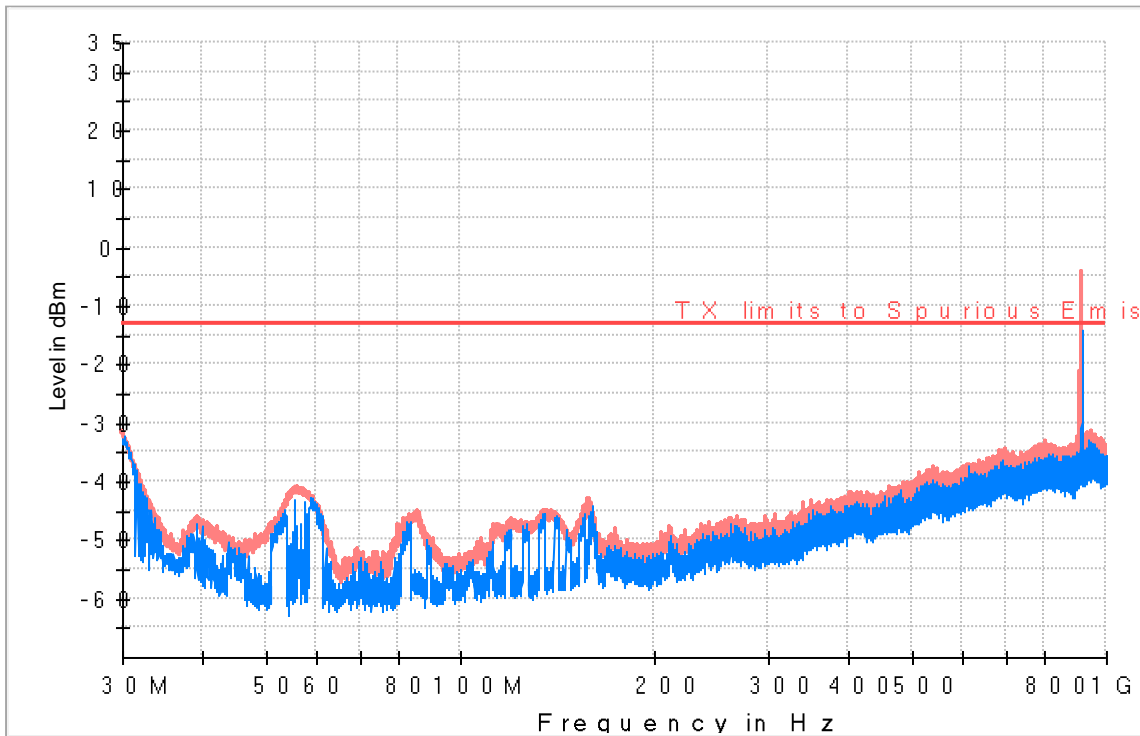
1-18 GHz



— PK+_MAXH — PK+_CLRW — TX limits to Spurious Emission

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)
1631.500000	-30.5	H	17.5	-13.0
14045.000000	-18.4	H	5.4	-13.0
17784.500000	-14.8	H	1.8	-13.0

TESTED SAMPLES:	S/02
TESTED CONDITIONS MODES:	TC#04
TEST RESULTS :	30-1000 MHz

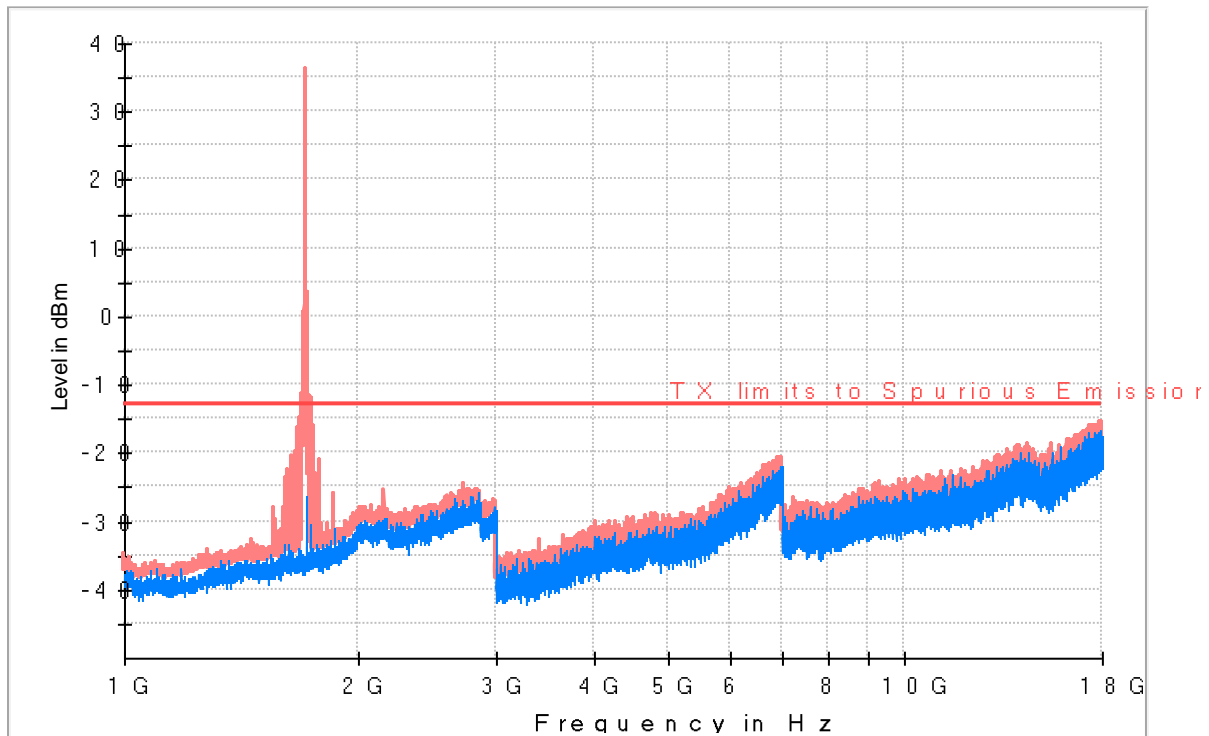


— PK+_MAXH — PK+_CLRW R — TX limits to Spurious Emission

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
30.032333	-31.5	V	18.5	-13.0	
55.575667	-41.1	V	28.1	-13.0	
85.645667	-45.7	V	32.7	-13.0	
158.040000	-43.7	V	30.7	-13.0	
414.637333	-42.1	V	29.1	-13.0	
604.369333	-37.6	H	24.6	-13.0	
795.685667	-33.9	H	20.9	-13.0	
916.030333	-4.2	H	---	---	Z-Wave Fundamental

TEST RESULTS (Cont.):

1-18 GHz



— PK+_MAXH — PK+_CLRWR — TX limits to Spurious Emission

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
1710.500000	36.2	H	---	---	Cellular Uplink
2729.500000	-24.7	H	11.7	-13.0	
17912.000000	-15.4	H	2.4	-13.0	