DEKRA Certification, Inc.
405 Glenn Dr. Suite 12,
Sterling, VA 20164
United States of America

FCC LISTED, REGISTRATION NUMBER: 2764.01

ISED LISTED REGISTRATION NUMBER: 23595-1

Test report No:
3809ERM.004A2

Partial Test report

USA FCC Part 15.247, 15.407, 15.209, 15.207, 15.31(h), Part 22, Part 24, Part 27 CANADA RSS-247, RSS-Gen

(*) Identification of item tested	Telematics Control Unit
(*) Trademark	Zoox L5 TCU
(*) Model and /or type reference tested	L5 TCU
Other identification of the product	FCC ID: 2AHPN-BE2873 HW version: C3 SW version: S7.8
(*) Features	UMTS, LTE, 4G, Wi-Fi (802.11 b, g, n, ac, ax)
Manufacturer	Harman International 30001 Cabot Drive. Novi, MI 48377, USA
Test method requested, standard	USA FCC Part 15.247 (06-01-20 Edition): Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz. USA FCC Part 15.407 (07-02-21 Edition): Unlicensed National Information Infrastructure Devices. General technical requirements. USA FCC Part 22,24 & 27 (10-1-18 Edition). USA FCC Part 15.209 (10-1-20 Edition): Radiated emission limits; general requirements. CANADA RSS-247 Issue 3 (August 2023). CANADA RSS-Gen Issue 5 amendment 1 (March 2019). Guidance for Performing Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid Systems Devices Operating Under Section 15.247 of the FCC Rules. 558074 D01 Meas Guidance v05r02 dated April 2, 2019. ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Summary	See Appendix A
Approved by (name / position & signature)	Domingo Galvez EMC&RF Lab Manager Digitally signed by Domingo Galvez DN: cn=Domingo Galvez, o=Dekra Certification Inc., ou=Regulatory Lab Manager, email=domingo.galvez@dekra.com, c=US
Date of issue	03-04-2024
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.

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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. The sample consists of a Telematics control unit developed by Harman for Zoox. Enables connectivity to the Zoox robotaxi.

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:

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/01	3809/60	Telematics Control Unit	-	22312-00011	2/19/2024	Element Under Test
S/01	3809/90	Mohawk Module Antenna 2	-	S23188-00207	2/19/2024	Element Under Test
S/01	3809/104	BTWLAN Antenna 1	-	21104-00032	2/19/2024	Element Under Test
S/01	3809/105	BTWLAN Antenna 2	-	21104-00034	2/19/2024	Element Under Test
S/01	3809/106	Dual RF Fakra to Fakra cable	-	-	2/19/2024	Element Under Test
S/01	3809/107	Dual RF Fakra to Fakra cable	-	-	2/19/2024	Element Under Test
S/01	3809/108	Dual RF Fakra to Fakra cable	-	-	2/19/2024	Element Under Test
S/01	3809/112	Telematics Control Unit	-	23219-00021	2/23/2024	Element Under Test

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

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/01	3809/66	BR to ETH converter	-	-	2/19/2024	Accessory
S/01	3809/79	USB Type A (male) to USB Mini (male) cable 1M	-	-	2/19/2024	Accessory
S/01	3809/81	RJ45 Ethernet cable	5E	-	2/19/2024	Accessory
S/01	3809/97	LTE Dual RF Fakra to Fakra cable	-	-	2/19/2024	Accessory
S/01	3809/109	ZOOX 20WAY Main Test Harness	-	-	2/19/2024	Accessory
S/01	3809/110	ZOOX 20WAY Main Test Harness	-	-	2/19/2024	Accessory
S/02	3809/87	Laptop	LENOVO T460	PC0GXU41	2/19/2024	Auxiliary Element

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

Test sample description

Ports……:	Port name and description	Cable					
		Specified max length [m]	Attached during test	Shielded	Coupled to patient (3)		
	Dual FAKRA Coax connector, White	<5m	[X]	[X]	[ ]		
	Dual FAKRA Coax connector, Purple	<5m	[X]	[X]	[ ]		
	Nano MQS 20pol Main connector	<5m	[X]	[X]	[ ]		
	Ethernet connector, Turquoise	<5m	[X]	[X]	[ ]		
	.....	.....	[ ]	[ ]	[ ]		
	.....	.....	[ ]	[ ]	[ ]		
Supplementary information to the ports…… :	.....						
Rated power supply .....:	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	[ ]	AC:	[ ]	[ ]	[ ]	[ ]	[ ]
	[ ]	AC:	[ ]	[ ]	[ ]	[ ]	[ ]
	[X]	DC: 12V nominal Car Battery, 6V to 16V max					
	[ ]	DC:					
Rated Power .....:	12V DC, 1A max						
Clock frequencies.....:	32,768 Hz, 12.288 MHz, 25 MHz, 26 MHz						
Other parameters .....:	.....						
Software version .....:	S7.8						
Hardware version .....:	C3						
Dimensions in cm (W x H x D) ....:	Approximate dimensions -- 203x135x23. See mechanical drawing for details.						
Mounting position .....:	[ ]	Table top equipment					
	[ ]	Wall/Ceiling mounted equipment					
	[ ]	Floor standing equipment					
	[ ]	Hand-held equipment					
	[X]	Other: Automotive Telematics control Unit					
Modules/parts.....:	Module/parts of test item		Type	Manufacturer			
	.....		.....	.....			
	.....		.....	.....			

	.....	.....	.....
	.....	.....	.....

Accessories (not part of the test item) .....:	Description	Type	Manufacturer
	Cable Harness	.....	.....
	Antenna	.....	.....
	.....	.....	.....
	.....	.....	.....
	.....	.....	.....
	.....	.....	.....
Documents as provided by the applicant.....:	Description	File name	Issue date
	Technical description	.....	.....
	.....	.....	.....
	.....	.....	.....
	.....	.....	.....

Copy of marking plate:

Identification of the client

Harman International
30001 Cabot Drive. Novi, MI 48377, USA

Testing period and place

Test Location	DEKRA Certification Inc.
Date (start)	02-27-2024
Date (finish)	03-04-2024

Document history

Report number	Date	Description
3809ERM.004	11-12-2023	First release.
3809ERM.004A1	01-23-2024	Second release. Antenna gain values were updated in Product Information at page 13. This modified test report cancels and replaces the test report 3809ERM.004.
3809ERM.004A2	03-04-2024	Third release. BTWLAN antennas were added in Usage of samples. Antenna gain information was updated in Product Information section, Appendix A. Also, the results two TCUs transmitting Wi-Fi and cellular with the Mohawk Antenna and BTWLAN antennas were added in the test report. This modified test report cancels and replaces the test report 3809ERM.004A1.

Environmental conditions

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

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

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

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

In the chamber for conducted measurements, the following limits were not exceeded during the test:

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

Remarks and comments

1. The tests have been performed by the technical personnel: Qi Zhang, Yuqi Wang, Prudhvi Kothapalli, Ivy Yousuf Moutushi and Koji Nishimoto.

Testing verdicts

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

Summary

FCC PART 15 PARAGRAPH (Wi-Fi 2.4GHz)				
15.247 Spec Clause	**RSS Spec Clause**	**Test Description**	**Verdict**	**Remark**
§ 2.1049 & §15.247 (a) (2)	RSS-247 5.2 (a)	99% Occupied Bandwidth & 6dB Bandwidth	N/M	Refer 1
§ 15.247 (b)	RSS-247 5.4 (d)	Maximum Output Power and antenna gain	N/M	Refer 1
§ 15.247 (d)	RSS-247 5.5	Band-edge conducted emissions compliance (Transmitter)	N/M	Refer 1
§ 15.247 (e)	RSS-247 5.2 (b)	Power Spectral Density	N/M	Refer 1
§15.247(d)	RSS-247 5.5	Emission limitations Conducted (Transmitter)	N/M	Refer 1
§15.247 (d)	RSS-247 5.5	Emission limitations Radiated (Transmitter)	P	N/A
Supplementary information and remarks: 1) Only multi-transmitter radiated spurious emission test was requested.				

FCC PART 15 PARAGRAPH / RSS-247 (Wi-Fi 5GHz) Band				
15.407 Spec Clause	**RSS Spec Clause**	**Test Description**	**Verdict**	**Remark**
§ 15.403 KDB 789033 D02	RSS 247 6.2.4	26dB Emission Bandwidth & Occupied Bandwidth	N/M	Refer 1
§ 15.407 (e)	RSS 247 6.2.4.1	6dB Bandwidth	N/M	Refer 1
§ 15.407 (a)(3)	RSS 247 6.2.4.1	Power Limits. Maximum Output Power	N/M	Refer 1
§ 15.407 (a)(3)	RSS-247 6.2.4.1	Maximum Power Spectral Density	N/M	Refer 1
§ 15.407 (b)(4)	RSS-247 6.2.4.2	Band-edge conducted emissions compliance (Transmitter)	N/M	Refer 1
§ 15.407 (b)(6) § 15.207	RSS-Gen 8.8	Emission limitations Conducted (Transmitter)	N/M	Refer 1
§ 15.407 (b)(4),(7) § 15.209 § 15.205	RSS-247 6.2.4.2 RSS-Gen 8.9 & 8.10	Undesirable radiated emissions (Transmitter)	P	N/A
§ 15.407 (g)	RSS-Gen 6.11 & 8.11	Frequency Stability	N/M	Refer 1

Supplementary information and remarks:

1. Only multi-transmitter radiated spurious emission test was requested.

List of equipment used during the test

CONTROL NUMBER	DESCRIPTION	MANUFACTURER	MODEL	LAST CALIBRATION	NEXT CALIBRATION
1012	EMI Test Receiver	Rohde & Schwarz	ESR26	2022/04	2024/04
1014	FSV40 Signal Analyzer 40GHz	Rohde & Schwarz	FSV40	2022/08	2024/08
1056	DOUBLE-RIDGED WAVEGUIDE HORN ANTENNA (18-40GHz)	Rohde & Schwarz	3116C	2023-02-23	2026-02-23
1057	DOUBLE-RIDGED WAVEGUIDE HORN ANTENNA (750 MHz-18 GHz)	Rohde & Schwarz	3115	2023/07	2026/07
1064	Biconical Log antenna	ETS Lindgren	3142E	2021-12-13	2024-12-13
1108	Ethernet SNMP Thermometer- CR Room	HW Group	HWg-STE Plain	2022/10	2024/10
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
1461	Low Noise Preamplifier	Bonn Elektronik	BLMA0118-4A	2022/06	2024/06
1498	Radio Communication Tester	Rohde & Schwarz	CMW500	2019-09-23	N/A

Appendix A: Test results (Multi-transmitter)

Appendix A Content

PRODUCT INFORMATION

Information	Description
Modulation	Wi-Fi 2.4 GHz: DSSS, OFDM, MIMO-OFDM Wi-Fi 5 GHz: DSSS, OFDM, MIMO-OFDM Cellular: QPSK, 16QAM
Operation mode 1: Single Antenna Equipment	
- Operating Frequency Range	Wi-Fi 2.4 GHz: 2.402 - 2.483.5 GHz Wi-Fi 5 GHz: 5.150 - 5.250 GHz, 5.725 - 5.85 GHz Cellular: UMTS: 2,4,5 LTE: 2, 4, 5, 7, 10, 12, 13, 17, 25, 26, 29 (RX), 30(RX), 66, 71,41
- Nominal Channel Bandwidth	Wi-Fi 2.4 GHz: 20MHz, 40MHz Wi-Fi 5 GHz 20MHz, 40MHz, 80MHz Cellular: 1.4, 3, 5, 10, 15, 20 MHz
- RF Output Power	Wi-Fi 2.4 GHz: 14.03 dBm Wi-Fi 5 GHz: 17.2 dBm Cellular: UMTS: 24 dBm LTE: 23 dBm
Antenna type	External Antenna
Antenna gain	Wi-Fi 2.4 GHz: BTWLAN Antenna — Mohawk Module Antenna -1.5 dBi for SISO A — 0 dBi for SISO A -1.5 dBi for SISO B — 3.5 dBi for SISO B -1.5 dBi for MIMO — 2.1 dBi for MIMO Wi-Fi 5 GHz : BTWLAN Antenna SISO A : 3.8 dBi (UNI-1) & 3.5 dBi (UNI-3) SISO B : 3.8 dBi (UNI-1) & 3.5 dBi (UNI-3) MIMO : 3.8 dBi (UNI-1) & 3.5 dBi (UNI-3) Mohawk Module Antenna SISO A : 2.0 dBi (UNI-1) & 4.0 dBi (UNI-3) SISO B : 2.0 dBi (UNI-1) & 2.1 dBi (UNI-3) MIMO : 2.0 dBi (UNI-1) & 3.2 dBi (UNI-3) MIMO Antenna gain values are calculated based on SISO A & SISO B values according to KDB 662911 D02(F) Cellular LTE: 4.5 dBi
Nominal Voltage	
- Supply Voltage	12 Vdc
- Type of power source	DC voltage
Equipment type	Wi-Fi 2.4 GHz, Wi-Fi 5 GHz and Cellular

DESCRIPTION OF TEST CONDITIONS

<table>
<tr><th>TEST CONDITIONS</th><th>DESCRIPTION</th></tr>
<tr><td>TC#01(1)</td><td>Power supply (V):
DC 12 V
Test Frequencies for Radiated tests:
<table>
<tr><th>Technology</th><th colspan="2">Tested Frequency (MHz)</th><th>BW (MHz)</th><th>Modulation</th><th>Mode</th></tr>
<tr><td rowspan="2">Wi-Fi 2.4 GHz SISO</td><td>Low Channel</td><td>2412</td><td rowspan="2">20</td><td rowspan="2">OFDM</td><td rowspan="2">b mode</td></tr>
<tr><td>Mid Channel</td><td>2437</td></tr>
<tr><td rowspan="2">Cellular LTE</td><td>Low Channel</td><td>824.0</td><td rowspan="2">10</td><td rowspan="2">QPSK</td><td rowspan="2">Band 5</td></tr>
<tr><td>Mid Channel</td><td>836.5</td></tr>
</table></td></tr>
<tr><td>TC#02(1)</td><td>Power supply (V):
DC 12 V
Test Frequencies for Radiated tests:
<table>
<tr><th>Technology</th><th colspan="2">Tested Frequency (MHz)</th><th>BW (MHz)</th><th>Modulation</th><th>Mode</th></tr>
<tr><td rowspan="2">Wi-Fi 2.4 GHz SISO</td><td>Low Channel</td><td>2412</td><td rowspan="2">20</td><td rowspan="2">OFDM</td><td rowspan="2">b mode</td></tr>
<tr><td>Mid Channel</td><td>2437</td></tr>
<tr><td rowspan="2">Cellular LTE</td><td>Low Channel</td><td>1850.0</td><td rowspan="2">20</td><td rowspan="2">QPSK</td><td rowspan="2">Band 2</td></tr>
<tr><td>Mid Channel</td><td>1880.0</td></tr>
</table></td></tr>
<tr><td>TC#03(1)</td><td>Power supply (V):
DC 12 V
Test Frequencies for Radiated tests:
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<tr><td rowspan="2">Wi-Fi 2.4 GHz SISO</td><td>Low Channel</td><td>2412</td><td rowspan="2">20</td><td rowspan="2">OFDM</td><td rowspan="2">b mode</td></tr>
<tr><td>Mid Channel</td><td>2437</td></tr>
<tr><td rowspan="2">Cellular LTE</td><td>Low Channel</td><td>2500.0</td><td rowspan="2">20</td><td rowspan="2">QPSK</td><td rowspan="2">Band 7</td></tr>
<tr><td>Mid Channel</td><td>2535.0</td></tr>
</table></td></tr>
</table>

<table>
<tr><td>TC#04(1)</td><td>Power supply (V):
DC 12 V
Test Frequencies for Radiated tests:
<table><tr><th>Technology</th><th colspan="2">Tested Frequency (MHz)</th><th>BW (MHz)</th><th>Modulation</th><th>Mode</th></tr><tr><td rowspan="2">Wi-Fi 5 GHz MIMO</td><td>Low Channel</td><td>5755</td><td rowspan="2">40</td><td rowspan="2">OFDM</td><td rowspan="2">ac mode</td></tr><tr><td>High Channel</td><td>5795</td></tr><tr><td rowspan="2">Cellular LTE</td><td>Low Channel</td><td>824.0</td><td rowspan="2">10</td><td rowspan="2">QPSK</td><td rowspan="2">Band 5</td></tr><tr><td>Mid Channel</td><td>836.5</td></tr></table></td></tr>
<tr><td>TC#05(1)</td><td>Power supply (V):
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Test Frequencies for Radiated tests:
<table><tr><th>Technology</th><th colspan="2">Tested Frequency (MHz)</th><th>BW (MHz)</th><th>Modulation</th><th>Mode</th></tr><tr><td rowspan="2">Wi-Fi 5 GHz MIMO</td><td>Low Channel</td><td>5755</td><td rowspan="2">40</td><td rowspan="2">OFDM</td><td rowspan="2">ac mode</td></tr><tr><td>High Channel</td><td>5795</td></tr><tr><td rowspan="2">Cellular LTE</td><td>Low Channel</td><td>1850.0</td><td rowspan="2">10</td><td rowspan="2">QPSK</td><td rowspan="2">Band 2</td></tr><tr><td>Mid Channel</td><td>1880.0</td></tr></table></td></tr>
<tr><td>TC#06(1)</td><td>Power supply (V):
DC 12 V
Test Frequencies for Radiated tests:
<table><tr><th>Technology</th><th colspan="2">Tested Frequency (MHz)</th><th>BW (MHz)</th><th>Modulation</th><th>Mode</th></tr><tr><td rowspan="2">Wi-Fi 5 GHz MIMO</td><td>Low Channel</td><td>5755</td><td rowspan="2">40</td><td rowspan="2">OFDM</td><td rowspan="2">ac mode</td></tr><tr><td>High Channel</td><td>5795</td></tr><tr><td rowspan="2">Cellular LTE</td><td>Low Channel</td><td>2500.0</td><td rowspan="2">10</td><td rowspan="2">QPSK</td><td rowspan="2">Band 7</td></tr><tr><td>Mid Channel</td><td>2535.0</td></tr></table></td></tr>
<tr><td colspan="2">Each test was performed with the equipment transmitting from Wi-Fi 2.4 GHz and Cellular radios, and Wi-Fi 5 GHz and Cellular radios from two TCUs with the Mohawk Antenna and BTWLAN antennas 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.</td></tr>
</table>

Note (1): The following tables and plots show the results for the worst case in Wi-Fi 2.4 GHz and Cellular (technology and band).

Note (2): The following tables and plots show the results for the worst case in Wi-Fi 5 GHz and Cellular (technology and band).

TEST A.1: EMISSION LIMITATIONS RADIATED (TRANSMITTER)

LIMITS:	Product standard:	Part 15 Subpart C §15.247, 15.407, Part 15.31(h), FCC 22,24,27, and RSS-247
	Test standard:	Part 15 Subpart C §15.247 (d), 15.407 (b), FCC §2.1053 and §22.917, FCC §2.1046 and §24.232, FCC §2.1046 and §27.50 and RSS-Gen 8.9 and 8.10, RSS-132 Clause 5.5, RSS-133 Clause 6.4, RSS-130 Clause 4.6.

LIMITS

Radiated emissions 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) / RSS-Gen):

Frequency Range (MHz)	Field strength (µV/m)	Field strength (dBµV/m)	Measurement distance (m)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	30
1.705 - 30.0	30	-	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
960 - 25000	500	54	3

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

For average radiated emission measurements above 1000 MHz, there is also a limit corresponding to 20 dB above the indicated values in the table is specified when measuring with peak detector function.

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts. The peak-to-average ratio (PAR) of the transmission shall not exceed 13 dB.

Fixed. mobile. and portable (hand-held) stations are limited to 2-watt EIRP (30 dBm). Fixed stations are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications. The peak-to-average ratio (PAR) of the transmission shall not exceed 13 dB.

Control stations and mobile stations transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands and fixed stations transmitting in the 787-788 MHz and 805-806 MHz bands are limited to 30 watts ERP (44.77 dBm).

TEST SETUP

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at 3 m for the frequency range 30-1000 MHz (Bilog antenna) and 1-18 GHz (Double ridge horn antenna), and 1m for the frequency range 18 GHz- 40 GHz (Double ridge horn antenna).

For radiated emissions in the range 18 -40 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

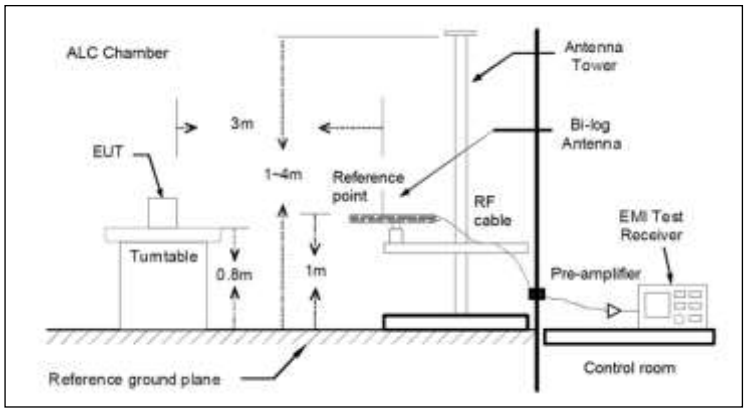
The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360º and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

Measurements were made in both horizontal and vertical planes of polarization.

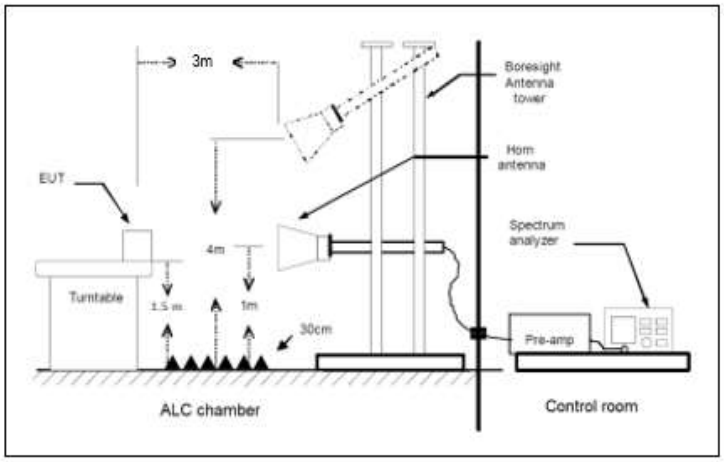
The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

TEST SETUP (CONT.)

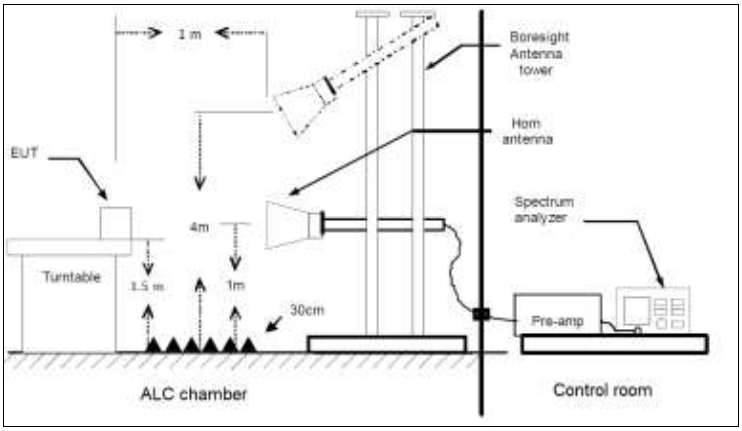
Radiated measurements Setup f < 1 GHz



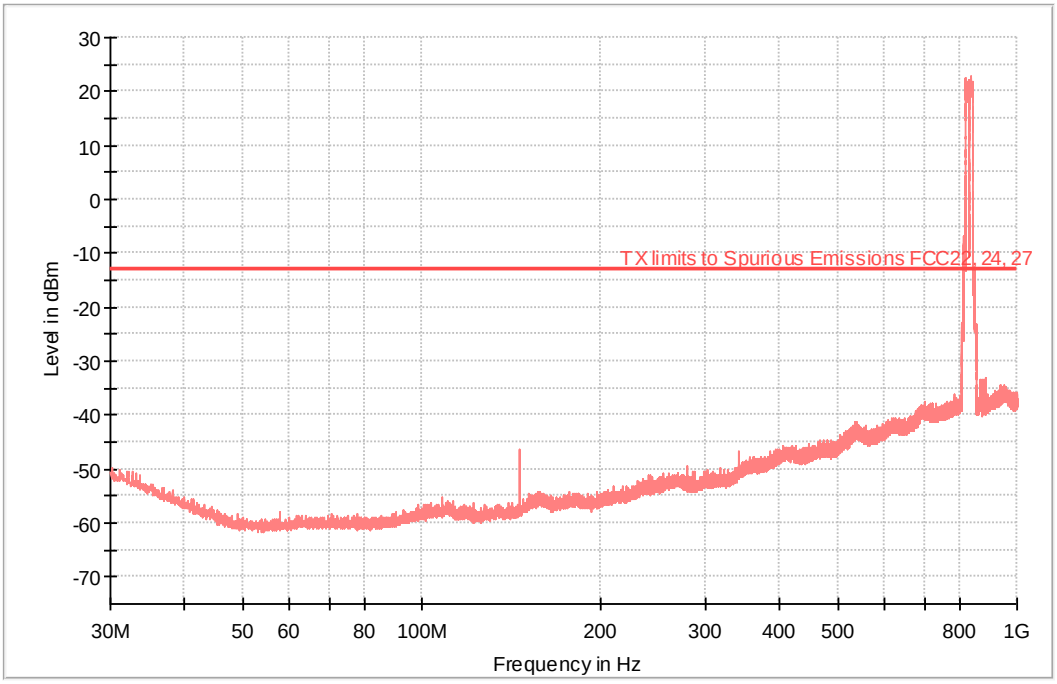
Radiated measurements setup f > 1-18 GHz



Radiated measurements setup f > 18 GHz



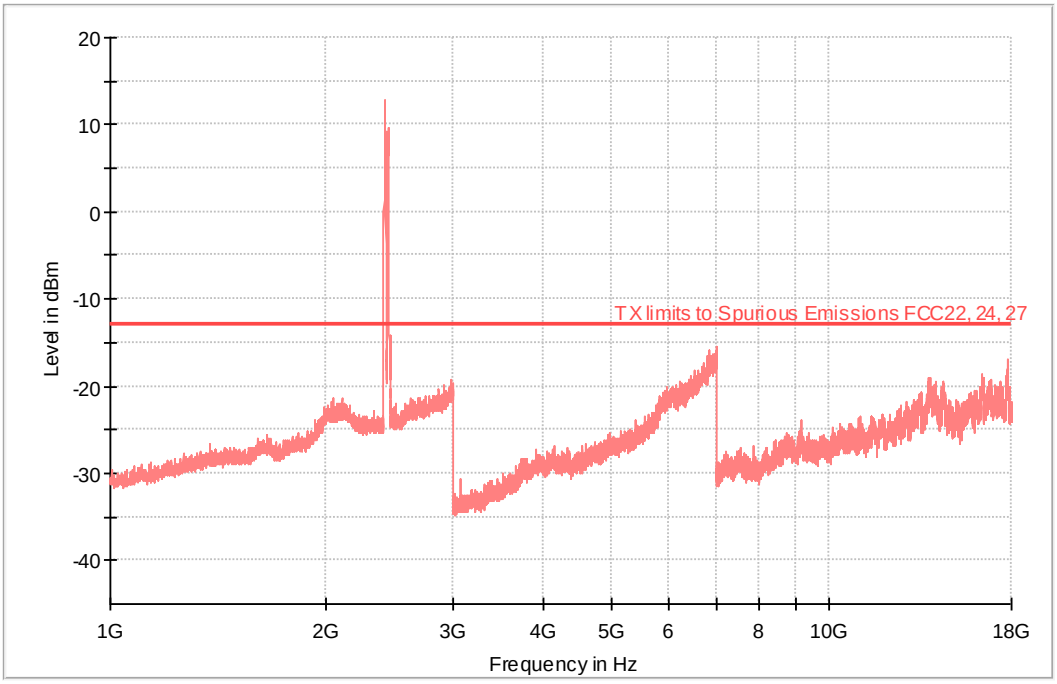
TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#01
TEST RESULTS:	30-1000 MHz



Final Result

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
145.979667	-46.3	H	33.3	-13.0	---
820.097333	22.6	H	---	---	LTE2 Fundamental
834.453333	22.9	H	---	---	LTE1 Fundamental

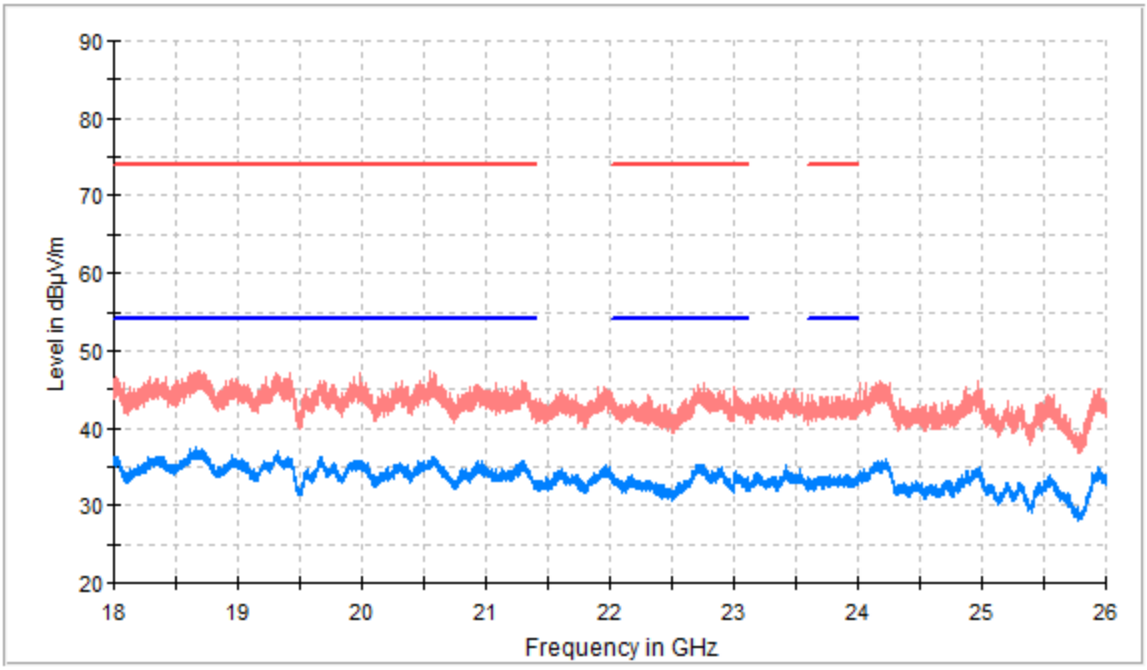
TEST RESULTS (Cont.):	1-18 GHz



Final Result

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
2413.500000	12.8	V	---	---	1st Wi-Fi 2.4GHz Fundamental
2439.500000	9.8	H	---	---	2nd Wi-Fi 2.4GHz Fundamental
16403.250000	-18.6	H	5.6	-13.0	---

TEST RESULTS (Cont.):	18 – 40 GHz

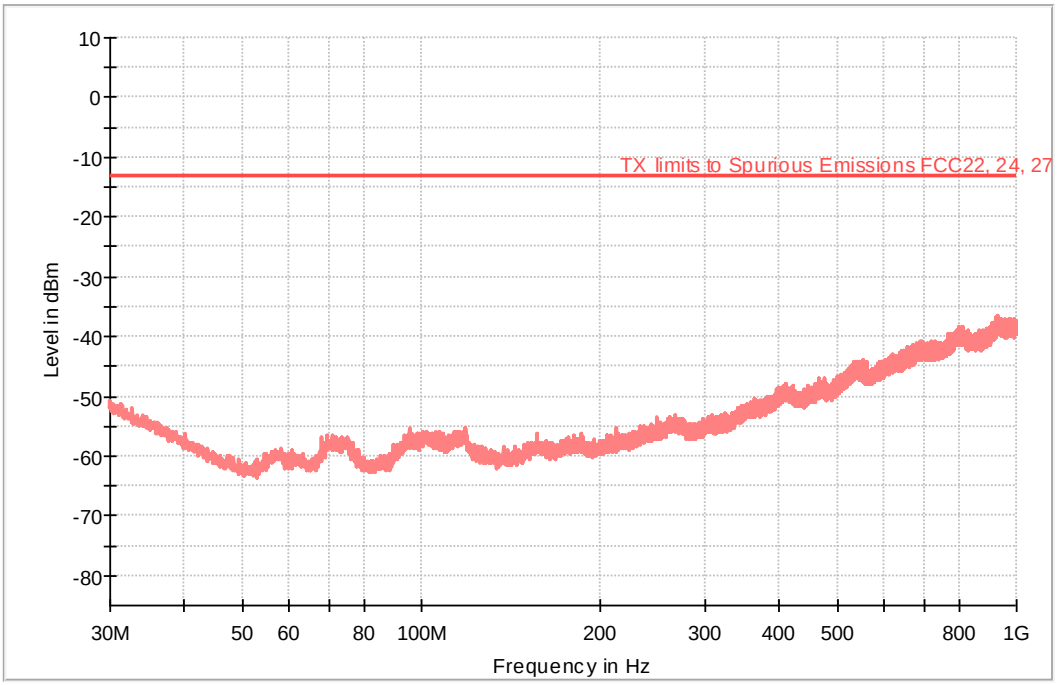


AVG_MAXH
PK+_MAXH
TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restricted Bands PK Limit
TX limits to Spurious Emission FCC15.247 (1-26 GHz) Restricted Bands AVG Limit

Final Result

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
18709.500000	46.2	37.4	V	16.6	54.0
20571.937500	44.9	36.3	H	17.7	54.0

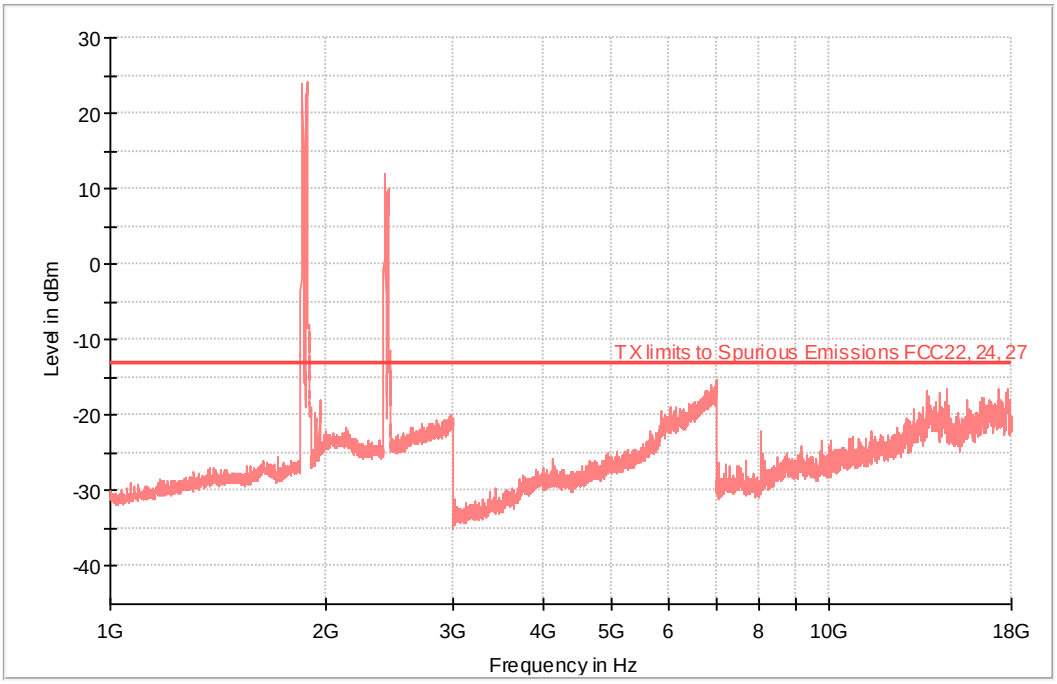
TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#02
TEST RESULTS:	30-1000 MHz



Final Result

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)
68.121000	-57.0	V	44.0	-13.0
95.523500	-55.5	H	42.5	-13.0
118.803500	-55.3	H	42.3	-13.0
212.893500	-55.5	H	42.5	-13.0
249.947500	-53.6	H	40.6	-13.0
929.093000	-36.5	H	23.5	-13.0

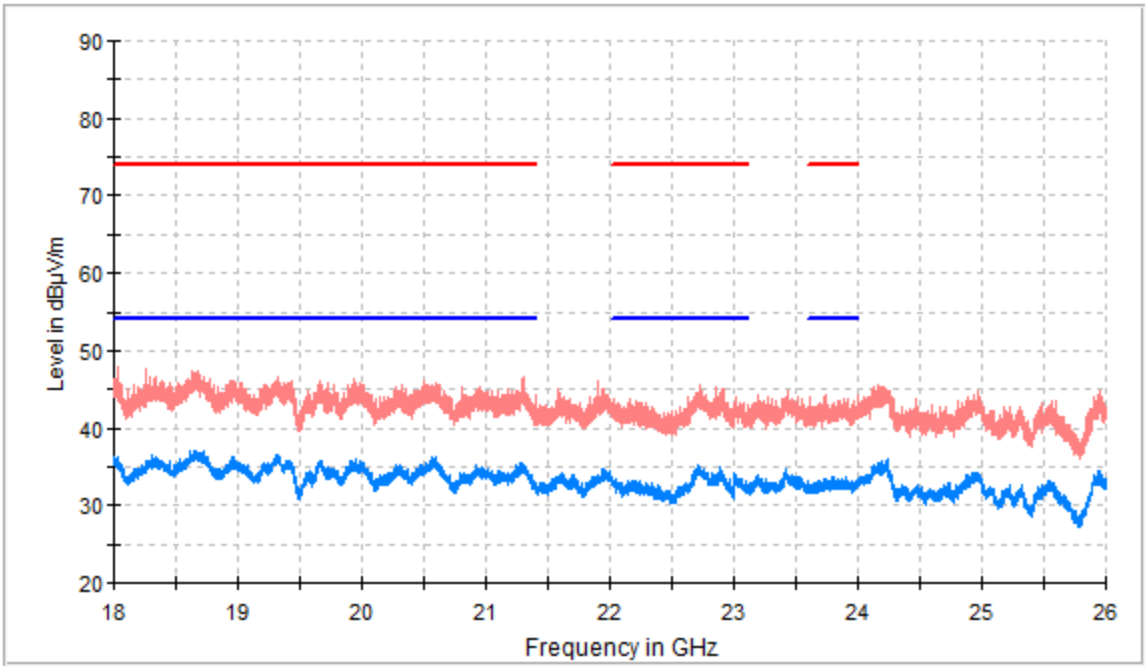
TEST RESULTS (Cont.):	1-18 GHz



Final Result

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
1851.500000	23.8	H	---	---	LTE1 Fundamental
1880.000000	24.0	H	---	---	LTE2 Fundamental
2410.500000	11.4	V	---	---	1st Wi-Fi 2.4GHz Fundamental
2440.000000	9.9	H	---	---	2nd Wi-Fi 2.4GHz Fundamental
14611.500000	-16.6	H	3.6	-13.0	---

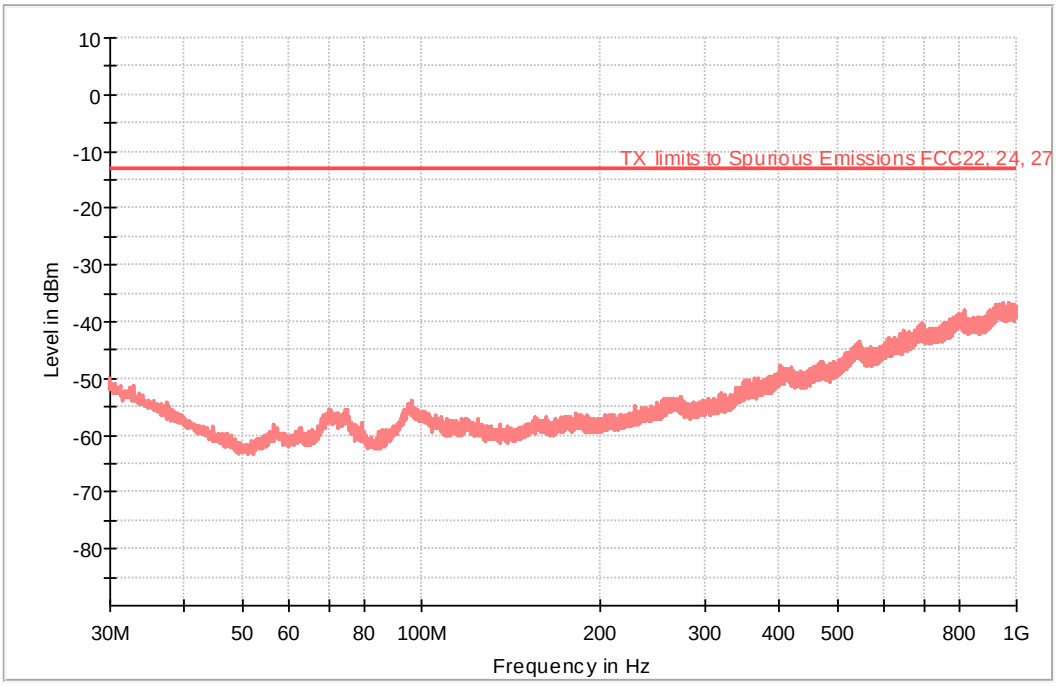
TEST RESULTS (Cont.):	18 – 40 GHz



Final Result

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
18627.687500	47.4	36.4	H	17.6	54.0

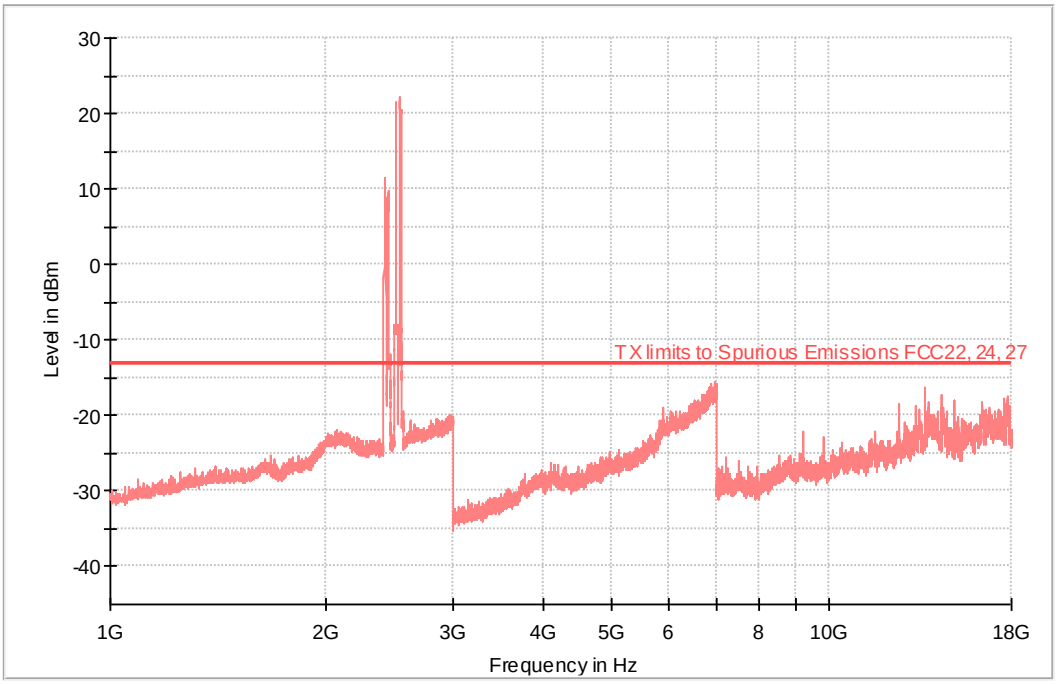
TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#03
TEST RESULTS :	30-1000 MHz



Final Result

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)
56.723500	-58.3	V	45.3	-13.0
70.352000	-55.5	V	42.5	-13.0
96.784500	-54.0	H	41.0	-13.0
161.968500	-56.9	H	43.9	-13.0
228.219500	-55.1	V	42.1	-13.0
820.938000	-38.2	H	25.2	-13.0

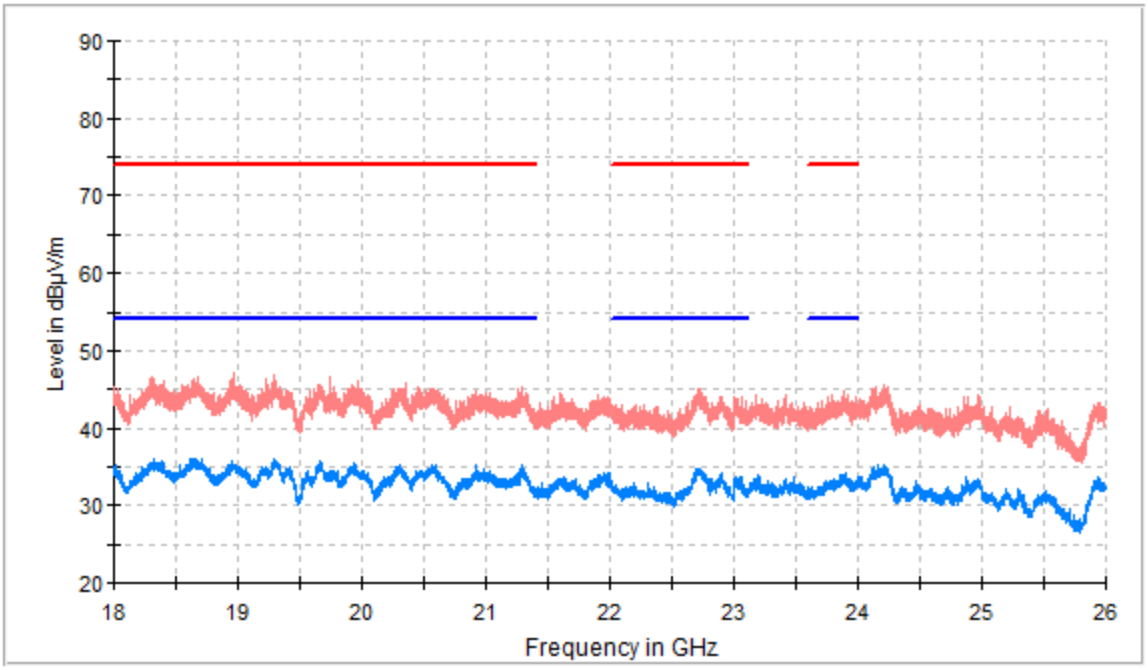
TEST RESULTS (Cont.):	1-18 GHz



Final Result

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
2410.500000	10.7	V	---	---	1st Wi-Fi 2.4GHz Fundamental
2443.500000	9.6	H	---	---	2nd Wi-Fi 2.4GHz Fundamental
2497.500000	21.4	H	---	---	LTE1 Fundamental
2533.500000	21.7	V	---	---	LTE2 Fundamental
13598.250000	-16.2	V	3.2	-13.0	---

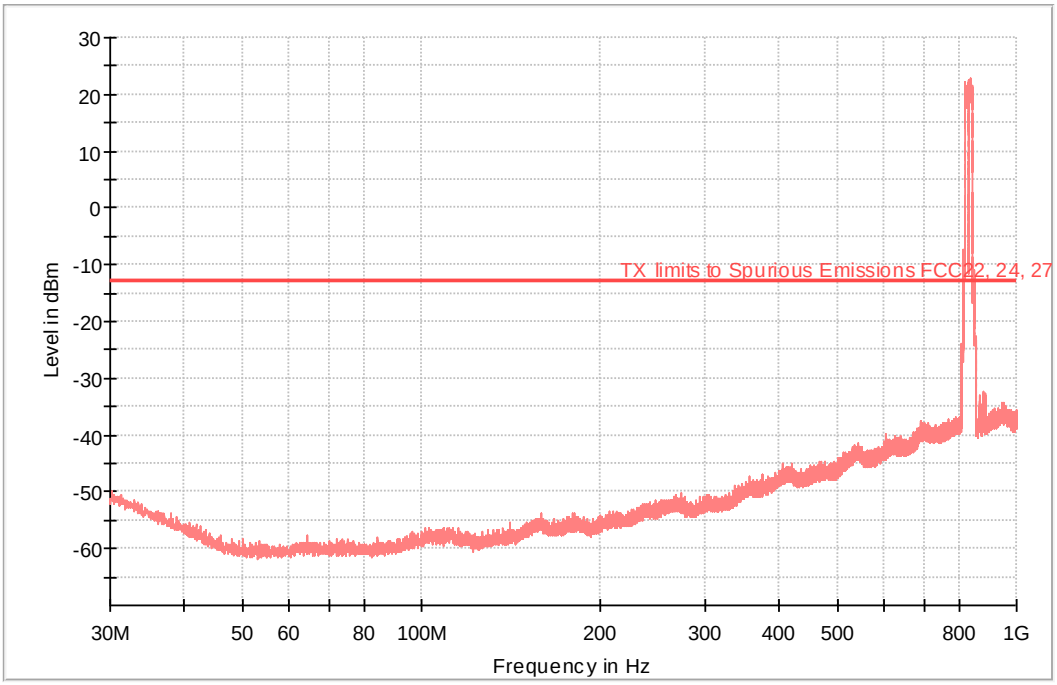
TEST RESULTS (Cont.):	18 – 40 GHz



Final Result

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
19297.312500	46.8	35.3	H	18.7	54.0

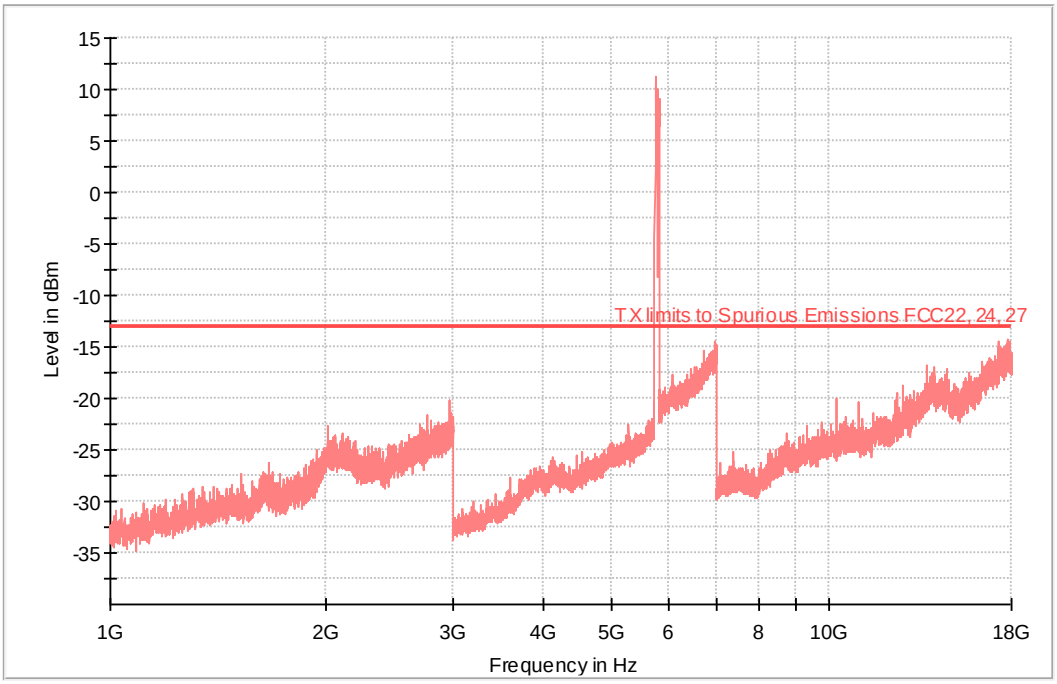
TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#04
TEST RESULTS:	30-1000 MHz



Final Result

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
420.231000	-44.9	H	31.9	-13.0	---
820.129667	22.3	H	---	---	LTE2 Fundamental
834.162333	22.9	H	---	---	LTE1 Fundamental

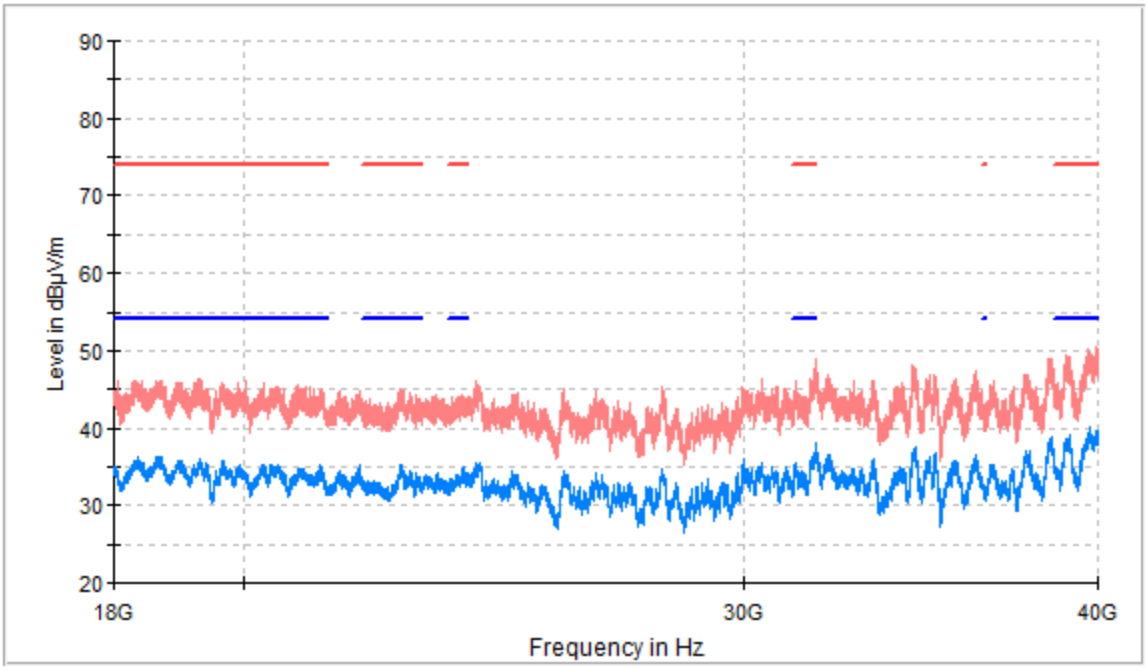
TEST RESULTS (Cont.):	1-18 GHz



Final Result

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
5748.750000	11.3	H	---	---	1st Wi-Fi Fundamental
5797.500000	10.0	V	---	---	2nd Wi-Fi Fundamental
13716.000000	-16.8	V	3.8	-13.0	---

TEST RESULTS (Cont.):	18 – 40 GHz

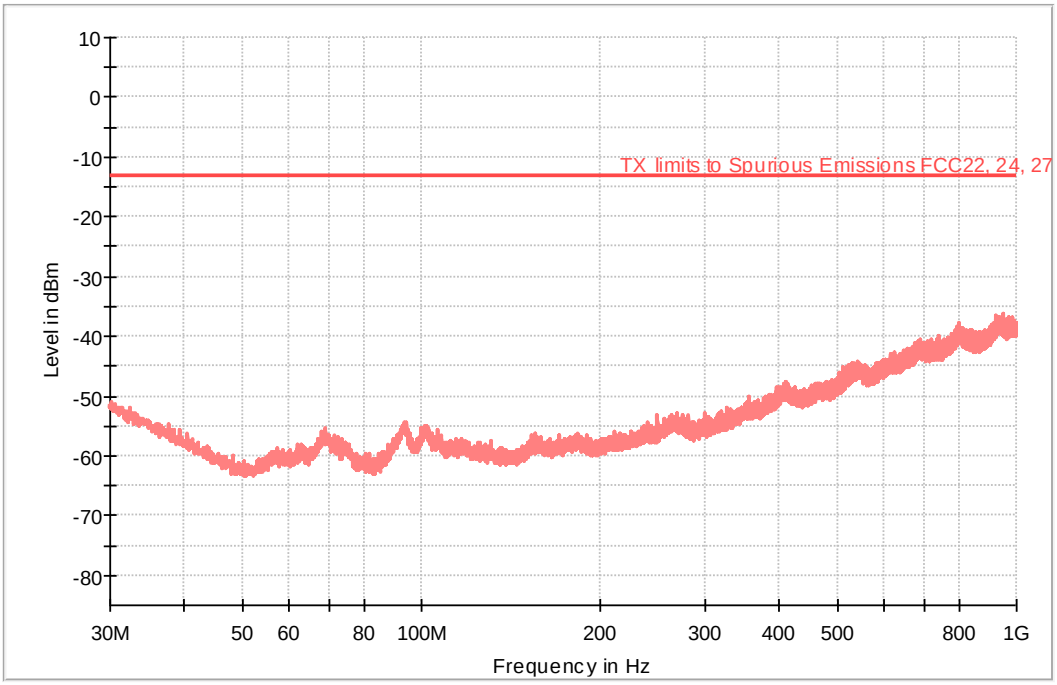


AVG_MAXH
PK+_MAXH
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Final Result

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
20288.000000	43.9	35.3	V	18.7	54.0

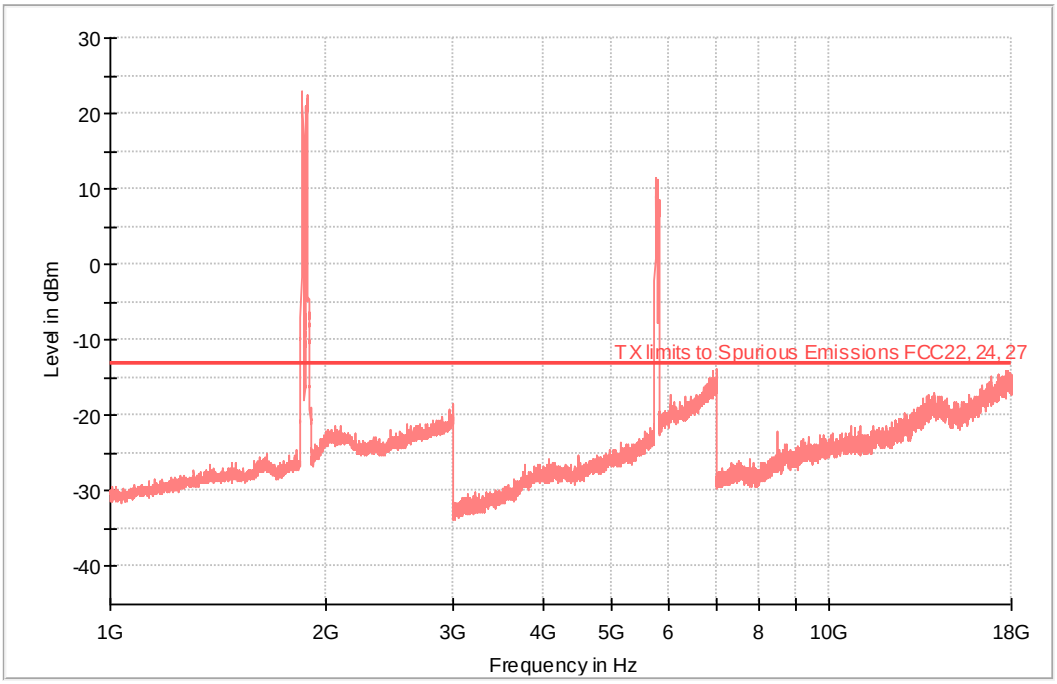
TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#05
TEST RESULTS :	30-1000 MHz



Final Result

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)
48.333000	-59.9	H	46.9	-13.0
68.848500	-55.4	V	42.4	-13.0
94.456500	-54.4	H	41.4	-13.0
106.727000	-55.6	H	42.6	-13.0
249.947500	-53.1	H	40.1	-13.0
409.949000	-47.6	V	34.6	-13.0

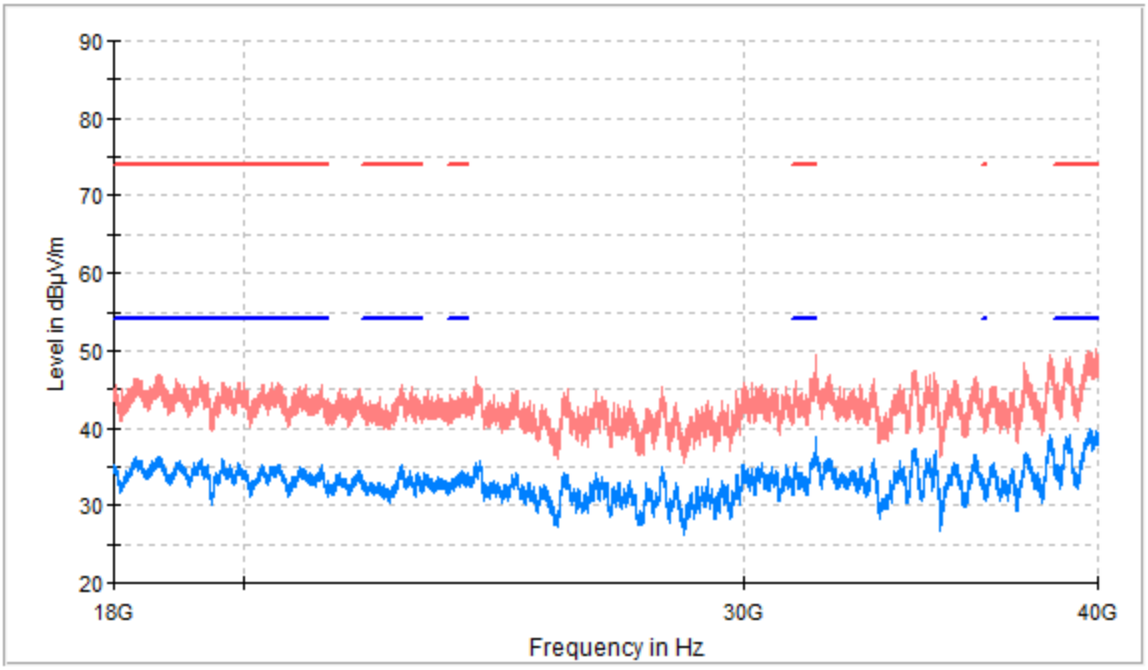
TEST RESULTS (Cont.):	1-18 GHz



Final Result

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
1853.500000	23.0	V	---	---	LTE1 Fundamental
1882.500000	22.5	H	---	---	LTE2 Fundamental
5760.750000	11.5	H	---	---	1st Wi-Fi 5GHz Fundamental
5780.250000	11.3	H	---	---	2nd Wi-Fi 5GHz Fundamental
8517.750000	-22.0	H	9.0	-13.0	---

TEST RESULTS (Cont.):	18 – 40 GHz

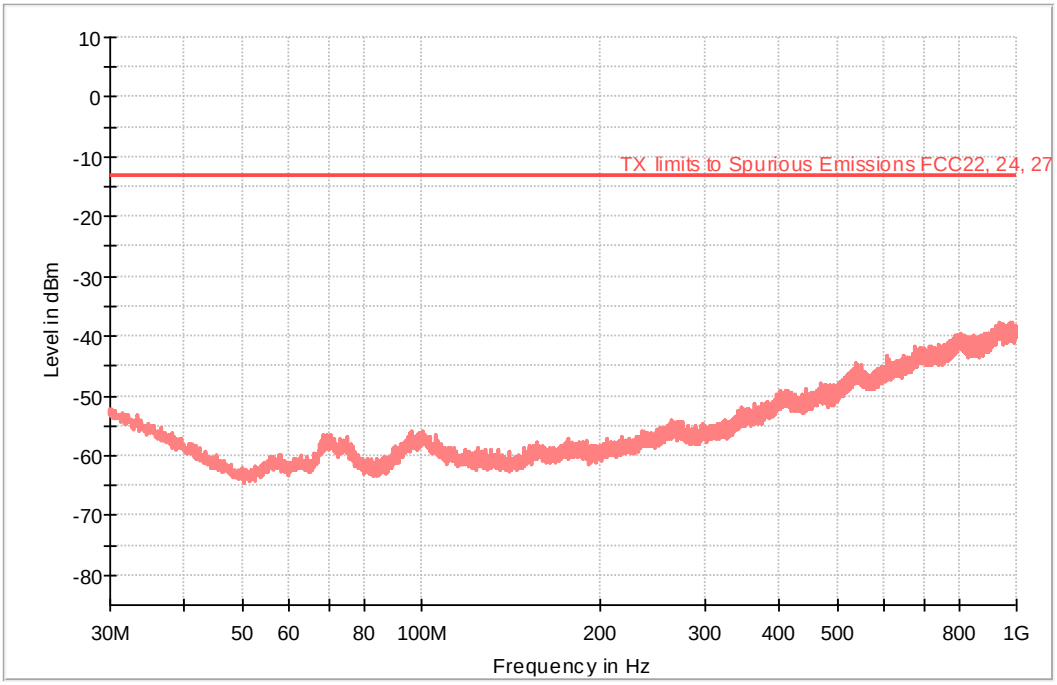


AVG_MAXH
PK+_MAXH
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Final Result

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
39719.500000	48.7	39.8	V	14.2	54.0

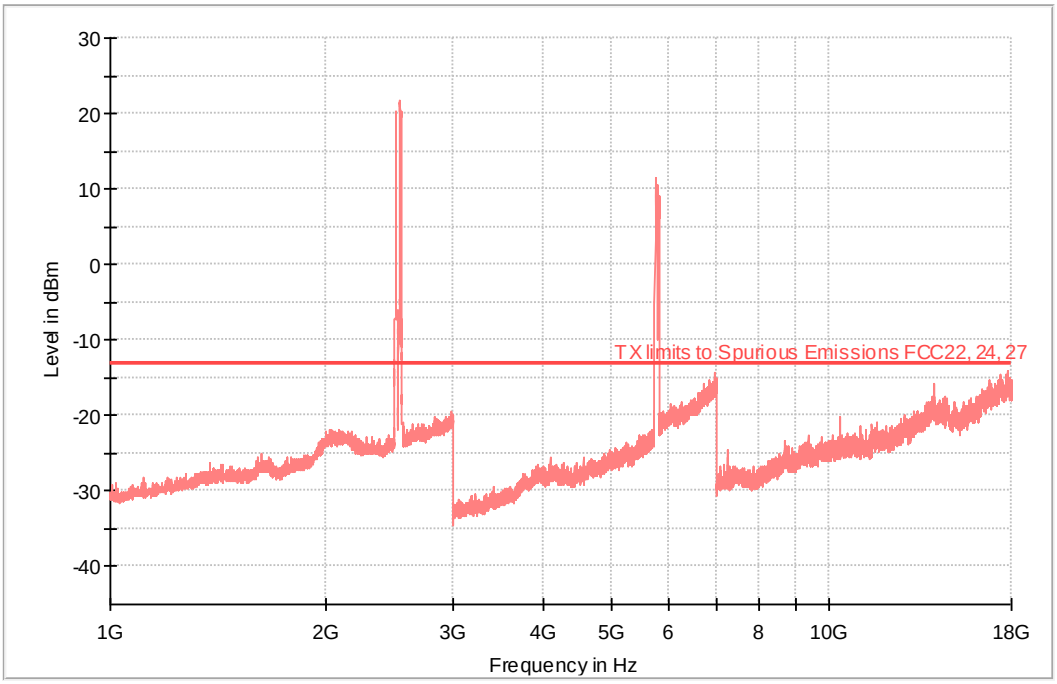
TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#06
TEST RESULTS :	30-1000 MHz



Final Result

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)
69.527500	-56.7	V	43.7	-13.0
75.299000	-56.9	V	43.9	-13.0
105.805500	-56.6	H	43.6	-13.0
469.943500	-48.0	H	35.0	-13.0
606.956000	-43.2	H	30.2	-13.0
855.712500	-40.1	V	27.1	-13.0

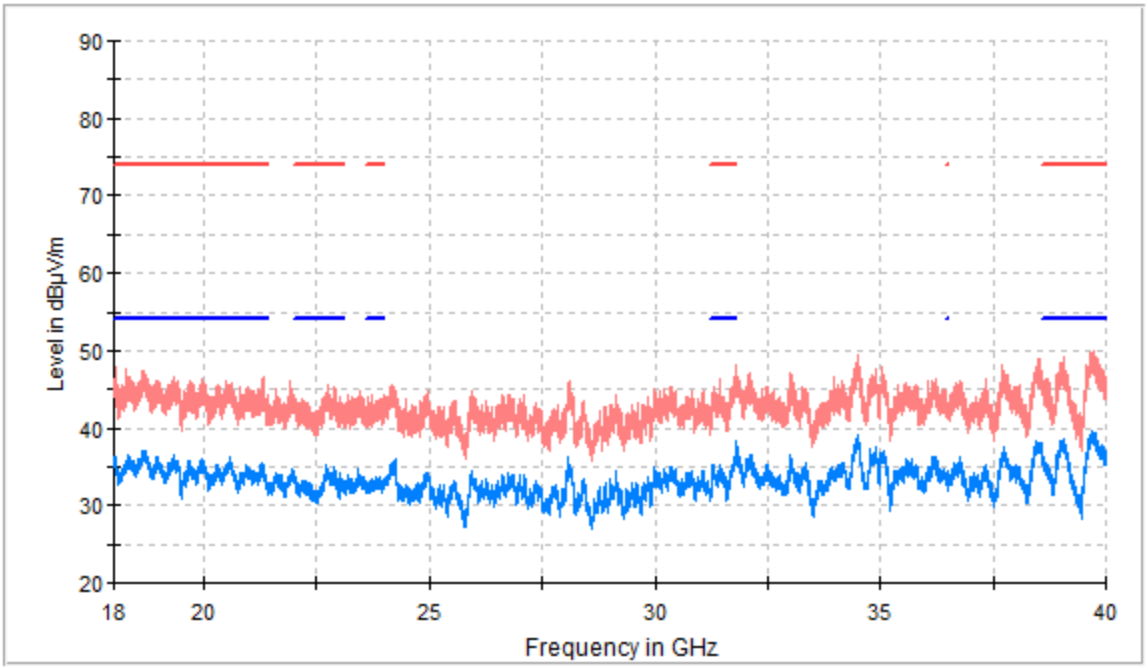
TEST RESULTS (Cont.):	1-18 GHz



Final Result

Frequency (MHz)	PK+_MAXH (dBm)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBm)	Comment
2498.500000	20.3	H	---	---	LTE1 Fundamental
2533.500000	21.8	H	---	---	LTE2 Fundamental
5760.000000	11.4	H	---	---	1st Wi-Fi 5GHz Fundamental
5801.250000	9.1	V	---	---	2nd Wi-Fi 5GHz Fundamental
14074.500000	-15.9	V	2.9	-13.0	---

TEST RESULTS (Cont.):	18 – 40 GHz



Final Result

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
39709.875000	48.3	39.5	H	14.5	54.0