

Test Report No:  
NIE: 72370RRF.007A1

## Partial Test Report

USA FCC Part 15.31(h), 15.209, 15.247, 15.407

(*) Identification of item tested	CIVIC Central In-Vehicle Infotainment Computer
(*) Trademark	Bosch
(*) Model and / or type reference	MBCI2LS4PN1
Other identification of the product	FCC ID: 2AUXS-MBCI2LS4PN1 IC: 25847-MBCI2LS4PN1
(*) Features	AM/FM/DAB/SIRIUS, GNSS, 2.4/5GHz WLAN, Bluetooth 5.1, Video/Audio etc HW version: D1.1 SW version: E23.3
Applicant	Robert Bosch GmbH Robert-Bosch-Strasse 200 31139, Hildesheim Germany
Test method requested, standard	USA FCC Part 15.31 (10-1-21) Edition: Measurement standards. USA FCC Part 15.209 (10-1-21) Edition: Radiated emission limits; general requirements. USA FCC Part 15.247 (10-1-21) Edition: Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz. USA FCC Part 15.407 (10-1-21) Edition: Unlicensed National Information Infrastructure (U-NII) Devices. General technical requirements. 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. Guidance for Emission Testing of Transmitters with Multiple Outputs in the Same Band 662911 D01 Multiple Transmitter Output v02r01 dated 10/31/2013. Guidance for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices 789033 D02 General U-NII Test Procedures New Rules v02r01 dated Dec 14, 2017 ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Approved by (name / position & signature)	Rafael López Martín EMC Consumer & RF Lab. Manager
Date of issue	2022-10-20
Report template No	FDT08_24 (*) "Data provided by the client"

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## Competences and guarantees

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## General Conditions

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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 Testing and Certification S.A.U.
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## Uncertainty

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Uncertainty (factor  $k=2$ ) was calculated according to the DEKRA Testing and Certification S.A.U. internal document PODT000.

## Data provided by the client

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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 of the model MBCI2LS4PN1 is a CIVIC Central In-Vehicle Infotainment Computer, including WLAN/ Bluetooth, GPS, AM/FM/DAB receiver.

DEKRA Testing and Certification S.A.U. declines any responsibility with respect to the information provided by the client and that may affect the validity of result.

## Usage of samples

Samples undergoing test have been selected by: The client.

- Sample S/01 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Reception
72370C/026	Central In-Vehicle Infotainment Computer	MBCI2LS4PN1	0006002	17/05/2022
72370C/010	Harness	--	--	17/05/2022
72370C/027	BT/WLAN Antenna	--	--	17/05/2022
72370C/028	BT/WLAN Antenna	--	--	17/05/2022
72370C/029	BT/WLAN Antenna	--	--	17/05/2022
72370C/030	BT/WLAN Antenna	--	--	17/05/2022

Auxiliary elements used with the Sample S/01:

Control Nº	Description	Model	Serial Nº	Reception
72370C/031	FAKRA 4n1 Cable	--	--	17/05/2022
72370C/032	SMA 4n1 Cable	--	--	17/05/2022
72370C/034	FAKRA to SMA Adapter	--	--	17/05/2022
72370C/035	FAKRA to SMA Adapter	--	--	17/05/2022
72370C/036	FAKRA to SMA Adapter	--	--	17/05/2022
72370C/037	FAKRA to SMA Adapter	--	--	17/05/2022
72370C/038	DC Block	--	--	17/05/2022
72370C/039	DC Block	--	--	17/05/2022
72370C/042	DC Block	--	--	17/05/2022
72370C/043	FAKRA to SMA Cable	--	--	17/05/2022
72370C/007	USB Cable	--	--	17/05/2022
72370C/008	USB Adapter	--	--	17/05/2022
72370C/009	Connecting Cable	--	--	17/05/2022

Sample S/01 has undergone the test(s): The tests indicated in the Appendix A.

## Test sample description

Ports.....:	Port name and description	Cable					
		Specified max length [m]	Attached during test	Shielded	Coupled to patient <sup>(3)</sup>		
	Main Connector	2m	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Most Connector	2m	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Fakra Quad Connector AM/FM/DAB	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	Fakra Single Connector GPS						
	Fakra Quad Connector WLAN/BT	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	-	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Supplementary information to the ports.....:	-						
Rated power supply .....	Voltage and Frequency		Reference poles				
	<input type="checkbox"/> AC:		<input type="checkbox"/> L1	<input type="checkbox"/> L2	<input type="checkbox"/> L3	<input type="checkbox"/> N	<input type="checkbox"/> PE
	<input checked="" type="checkbox"/> DC:	9-16V nominal 12 VDC by vehicle battery					
Rated Power.....:	-						
Clock frequencies.....:	-						
Other parameters .....	-						
Software version.....:	E23.3						
Hardware version .....	D1.1						
Dimensions in cm (W x H x D) ...:	-						
Mounting position .....	<input type="checkbox"/>	Table top equipment					
	<input type="checkbox"/>	Wall/Ceiling mounted equipment					
	<input type="checkbox"/>	Floor standing equipment					
	<input type="checkbox"/>	Hand-held equipment					
	<input checked="" type="checkbox"/>	Other: Cluster in the car					
Modules/parts.....:	Module/parts of test item		Type		Manufacturer		
	-						
	-						
	-						
Accessories (not part of the test item) .....	Description		Type		Manufacturer		
	Antennas						
	HUD						
	SA2 Panel						
	Cameras						
	-						
Documents as provided by the applicant .....	Description		File name		Issue date		
	-						
	-						
	-						

<sup>(3)</sup> Only for Medical Equipment

## Identification of the client

Robert Bosch GmbH  
Robert-Bosch-Strasse 200  
31139, Hildesheim, Germany

## Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2022-09-14
Date (finish)	2022-09-19

## Document history

Report number	Date	Description
72370RRF.007	2022-10-18	First release.
72370RRF.007A1	2022-10-20	Second release. Modification of Hardware Version of sample tested and correction of minor typos. This modification of test report cancels and replaces the test report 72370RRF.007.

## 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. = 20 % Max. = 75 %

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

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %

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

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %

## Remarks and comments

The tests have been performed by the technical personnel: Pablo Redondo and Miguel Manuel López.

Used instrumentation:

### Radiated Measurements:

		Last Calibration	Due Calibration
1.	Semianechoic Absorber Lined Chamber ETS LINDGREN FACT 3 200 STP	N.A.	N.A.
2.	Shielded Room ETS LINDGREN S101	N.A.	N.A.
3.	Hybrid Bilog Antenna 30 MHz - 6 GHz ETS LINDGREN 3142E	2020/10	2023/10
4.	Pre-amplifier G>38dB 30MHz-6GHz Bonn Elektronik BLNA 0360-01N	2022/06	2023/06
5.	EMI Test Receiver 2Hz-44GHz ROHDE AND SCHWARZ ESW44	2021/12	2023/12
6.	Horn antenna 1-18 GHz SCHWARZBECK BBHA 9120 D	2020/08	2023/08
7.	Pre-amplifier, G>30 dB ,1-18 GHz BONN ELEKTRONIK BLMA 0118-3A	2021/12	2022/12
8.	Broadband Horn antenna 18 - 40 GHz SCHWARZBECK MESS-ELEKTRONIK BBHA 9170	2020/05	2023/05
9.	PRE-AMPLIFIER G>30dB 17-40GHz BONN ELEKTRONIK BLMA 1840-4A	2021/09	2022/09
10.	DC Power Supply Keysight Technologies U8002A	---	---
11.	Digital Multimeter FLUKE 175	2021/11	2022/11
12.	Test Software EMC/RF ROHDE AND SCHWARZ EMC32	N.A.	N.A.

## Testing verdicts

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

## Summary

FCC PART 15 PARAGRAPH		
Requirement – Test case	Verdict	Remark
FCC 15.31 (h), 15.209 (a), 15.247 (d), 15.407 (b) - Emission limitations radiated (Transmitter)	P	(1)
<u>Supplementary information and remarks:</u> (1) Only simultaneous transmission radiated spurious emission test was requested.		

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## TEST CONDITIONS

(\*) Declared by the Client.

### POWER SUPPLY (\*):

Vnominal: 12 Vdc  
Type of Power Supply: Battery.

### ANTENNA (\*):

Type of Antennas: External.

### RADIOS AND CHANNELS TESTED:

\* Simultaneous Transmission Bluetooth EDR, WLAN 2.4 GHz, WLAN 5 GHz (band U-NII-1, band U-NII-3):

	Bluetooth EDR / FHSS / Chipset #1	
Mode:	Enhanced Data Rate (8DPSK)	
Channel Spacing:	1 MHz	
Frequency Range:	2402 MHz to 2480 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	Middle	2441

	Bluetooth EDR / FHSS / Chipset #2	
Mode:	Enhanced Data Rate (PI4-DQPSK)	
Channel Spacing:	1 MHz	
Frequency Range:	2402 MHz to 2480 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	Low	2402

	WLAN 2.4 GHz (IEEE 802.11 b/g/n20/ax20) / DTS	
Mode:	802.11 ax20: index MCS0	
Channel Spacing:	20 MHz	
Frequency Range:	2402 MHz to 2480 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	High	2462

	WLAN 5 GHz (IEEE 802.11 a20/n2040/ac204080/ax204080) / U-NII-1	
Mode:	802.11 ax80: index MSC0.	
Frequency Range:	5150 MHz to 5250 MHz	
Channel Spacing:	80 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	Middle	5210

	WLAN 5 GHz (IEEE 802.11 a20/n2040/ac204080/ax204080) / U-NII-3	
Mode:	802.11 ax20: index MSC0.	
Frequency Range:	5725 MHz to 5850 MHz	
Channel Spacing:	20 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	Low	5745

The test set-up was made in accordance to the general provisions of FCC DTS Measurement 558074 D01 DTS Meas Guidance v05r2 dated April 2, 2019 and FCC Unlicensed National Information Infrastructure (U-NII) Devices 789033 D02 General U-NII Test Procedures New Rules v02r01 dated Dec 14, 2017.

The EUT was tested in the following operating mode:

- Continuous transmission with a modulated carrier at maximum power in all required channels selecting the supported data rates/modulations types.

During transmitter test the EUT was being controlled by the SW tool to operate in a continuous transmit mode on the test channel as required and in each of the different modulation modes.

### Selected Transmission Mode for each Radio:

The following configurations were selected based on preliminary testing that identified those corresponding to the worst-cases:

\* Bluetooth EDR: Transmitter radiated spurious emissions tests were performed with the EUT transmitting in BT EDR mode configuration as this mode was found as the worst-case for PSD test of all Bluetooth modes.

\* WLAN 2.4 GHz: Transmitter radiated spurious emissions tests were performed with the EUT transmitting in 802.11 ax / 20 / MCS0 / RU 26 Offset 8 mode configuration as this mode was found as the worst-case for spurious emissions than all the other WLAN 2.4 GHz modes.

\* WLAN 5 GHz band U-NII-1: Transmitter radiated spurious emissions tests were performed with the EUT transmitting in 802.11 ax / 80 / MCS0 / RU 26 Offset 36 mode configuration as this mode was found as the worst-case for spurious emissions than all the other WLAN 5 GHz band U-NII-1 modes.

\* WLAN 5 GHz band U-NII-3: Transmitter radiated spurious emissions tests were performed with the EUT transmitting in 802.11 ax / 20 / MCS0 / RU 26 Offset 0 mode configuration as this mode was found as the worst-case for spurious emissions than all the other WLAN 5 GHz band U-NII-3 modes.

## TESTED SIMULTANEOUS TRANSMISSION MODES:

\* **Simultaneous transmission Bluetooth EDR Chipset #1, Bluetooth EDR Chipset #2, WLAN 2.4 GHz**, with the EUT configured to simultaneously transmit three RF signals at maximum output power:

BTEDR #1 in 8DPSK, BTEDR #2 in PI4-DQPSK, WLAN 2.4 GHz in 802.11 ax / 20 / MCS0 / RU 26 offset 8.

\* **Simultaneous transmission Bluetooth EDR Chipset #1, Bluetooth EDR Chipset #2, WLAN 5 GHz band UNII-1**, with the EUT configured to simultaneously transmit three RF signals at maximum output power:

BTEDR #1 in 8DPSK, BTEDR #2 in PI4-DQPSK, WLAN 5 GHz band U-NII-1 in 802.11 ax / 80 / MCS0 / RU 26 offset 36.

\* **Simultaneous transmission Bluetooth EDR Chipset #1, Bluetooth EDR Chipset #2, WLAN 5 GHz band U-NII-3**, with the EUT configured to simultaneously transmit three RF signals at maximum output power:

BTEDR #1 in 8DPSK, BTEDR #2 in PI4-DQPSK, WLAN 5 GHz band U-NII-3 in 802.11 ax / 20 / MCS0 / RU 26 offset 0.

## RADIATED MEASUREMENTS:

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna (Bilog antenna for the range between 30 MHz to 1000 MHz) and 1 GHz-18 GHz Double ridge horn antenna is situated at a distance of 3 m and a distance of 1.5 m for the frequency range 17 GHz-40 GHz (18 GHz-40 GHz horn antenna).

For radiated emissions in the range 17 GHz-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.

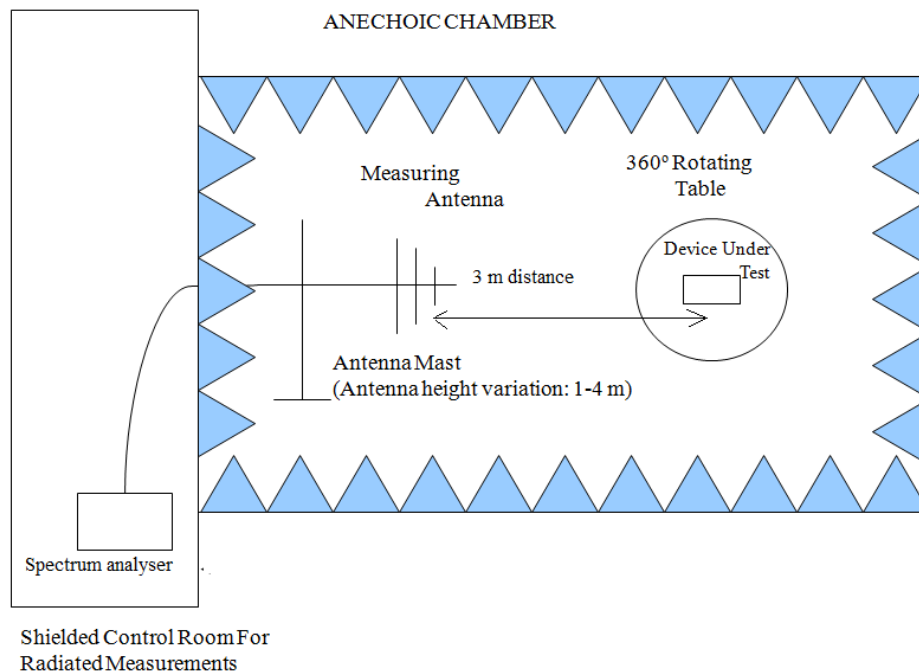
The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height (Bilog antenna and Double ridge horn antenna) was varied from 1 to 4 meters to find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

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

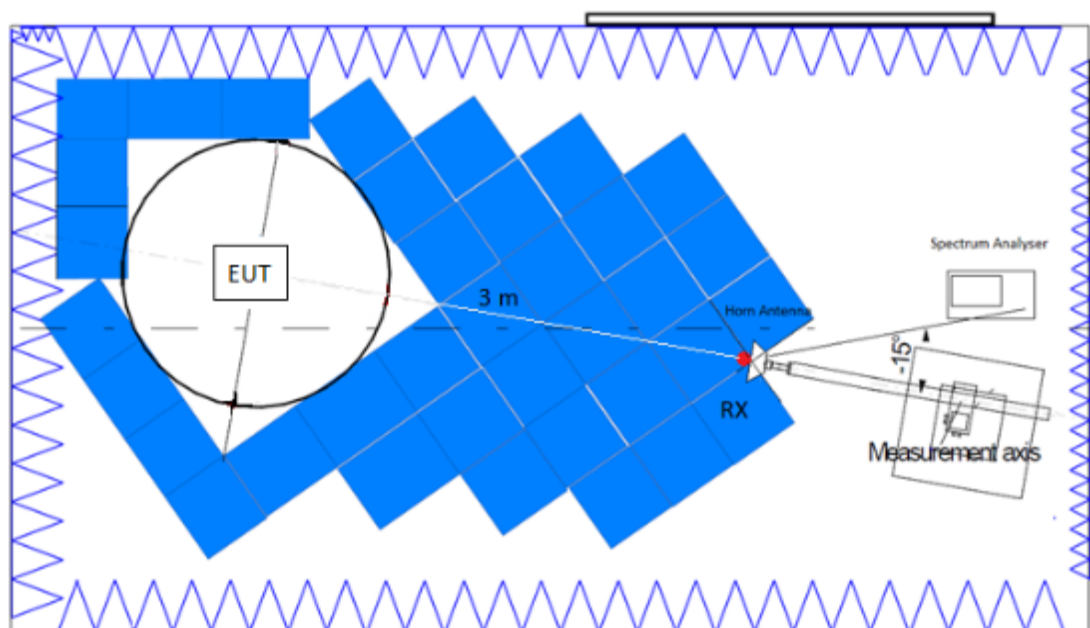
The final measured value, for the given emission, in the tables below incorporates the calibrated antenna factor and cable loss.

A resolution bandwidth/video bandwidth of 100 kHz/300 kHz was used for frequencies below 1 GHz and 1MHz/3MHz for frequencies above 1 GHz.

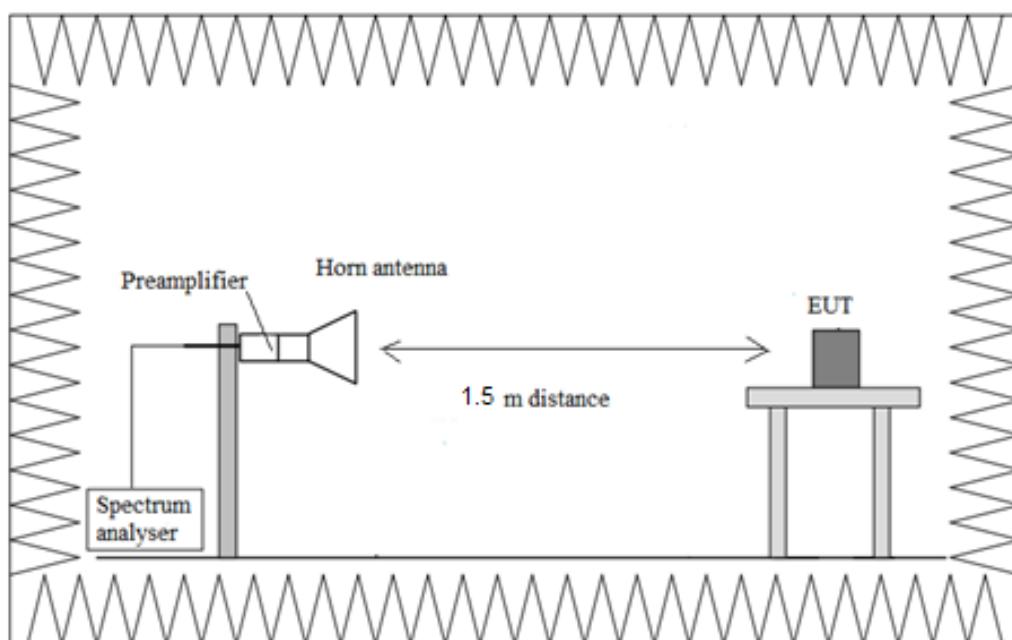
Radiated measurements setup  $f < 1$  GHz:



Radiated measurements setup from 1 GHz to 17 GHz:



Radiated measurements setup  $f > 17$  GHz:



## FCC 15.31 (h), 15.209 (a), 15.247 (d), 15.407 (b) Emission limitations radiated (Transmitter)

### SPECIFICATION:

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)):

Frequency Range (MHz)	Field strength ( $\mu\text{V/m}$ )	Field strength ( $\text{dB}\mu\text{V/m}$ )	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 - 40000	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, specified when measuring with peak detector function.

### RESULTS:

The situation and orientation of the equipment under test were varied to find the maximum radiated emission. It was also rotated 360° 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.

All tests were performed in a semi-anechoic chamber at a distance of 3 m for the frequency range 30 MHz-17 GHz and at distance of 1.5 m for the frequency range 17 GHz-40GHz.

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 performed on the following worst-cases in all relevant tests channels:

• **Simultaneous transmission mode BT EDR Chipset #1, BT EDR Chipset #2, WLAN 2.4 GHz**

Bluetooth EDR 8DPSK (Chipset #1):  
Bluetooth EDR PI4-DQPSK (Chipset #2):  
WLAN 2.4 GHz 802.11 ax:

Middle Channel (2441 MHz).  
Low Channel (2402 MHz).  
High Channel (2462 MHz). BW: 20 MHz. MCS0.  
RU 26 Offset 8.

LIMIT: The spurious frequencies were measured at 3 meters. The limit of the test is determined by:

Frequency Range	Detector	Limit at 3m (dBµV/m)
30 MHz to 88 MHz	Quasi-peak	40 dBµV/m
88 MHz to 216 MHz	Quasi-peak	43.5 dBµV/m
216 MHz to 960 MHz	Quasi-peak	46 dBµV/m
960 MHz to 1 GHz	Quasi-peak	54 dBµV/m
1 GHz to 26 GHz	Peak	74 dBµV/m
1 GHz to 26 GHz	Average	54 dBµV/m (*)

Radiated emissions which fall in the restricted bands, as defined in §15.205(a).

**Frequency range 30 MHz - 1 GHz:**

Spurious frequencies at less than 20 dB below the limit.

Spurious frequency (MHz)	Emission Level (dBµV/m)	Polarization	Detector
875.0215	37.26	V	Quasi Peak

Measurement Uncertainty (dB):  $\leq \pm 5.03$

**Frequency range 1 - 26 GHz:**

Spurious frequencies at less than 20 dB below the limit.

Spurious frequency (GHz)	Emission Level (dBµV/m)	Polarization	Detector
5.0696	43.85	H	Peak
5.3220	47.50	V	Peak

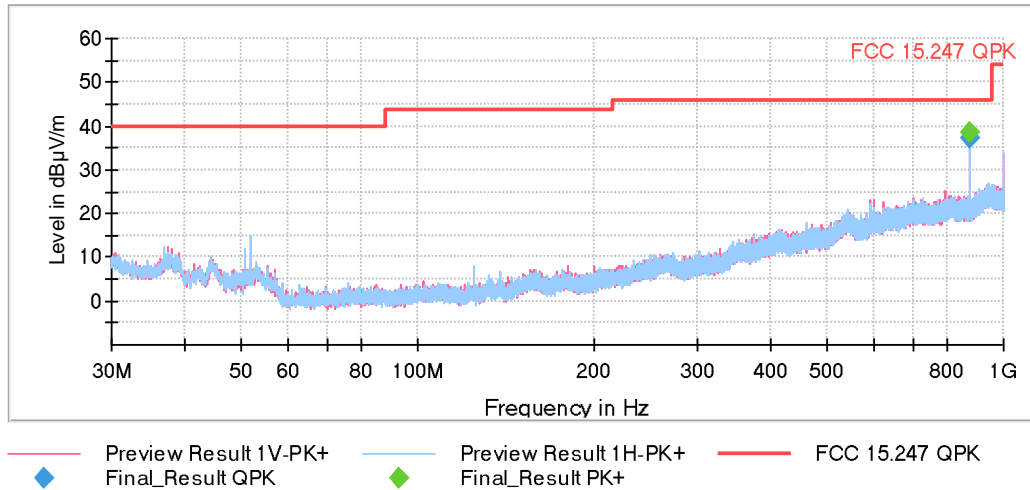
Measurement Uncertainty (dB): 1 GHz – 3 GHz  $\leq \pm 4.11$   
3 GHz – 17 GHz  $\leq \pm 4.32$   
17 GHz – 26 GHz  $\leq \pm 4.58$

Verdict: PASS

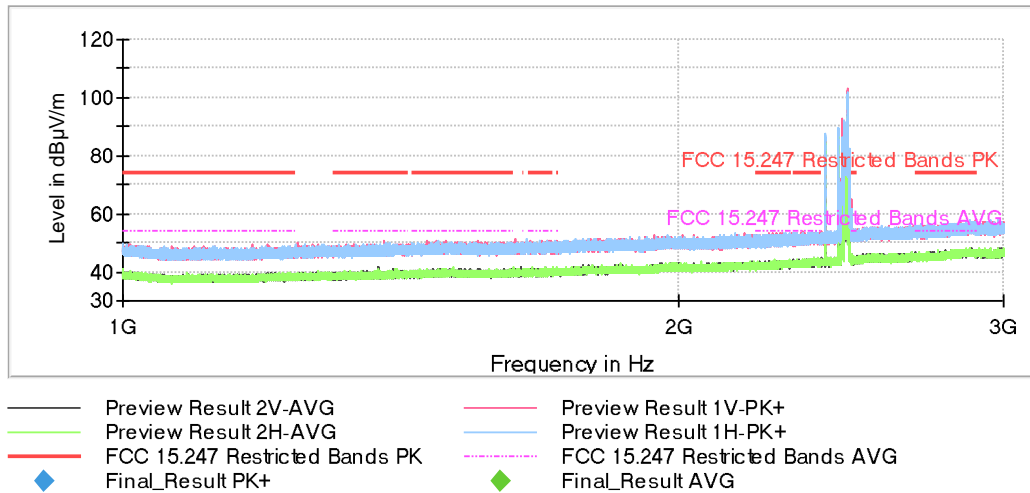
The measurement settings for each range of frequency is as follows:

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW 44] 30 MHz - 1 GHz	30,312 kHz	PK+	100 kHz	1 s	0 dB
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW 44] 1 GHz - 3 GHz	30,769 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW 44] 3 GHz - 17 GHz	140 kHz	PK+ ; AVG	1 MHz	1 s	30 dB
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW 44] 17 GHz - 26 GHz	300 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

#### FREQUENCY RANGE 30 MHz - 1 GHz:

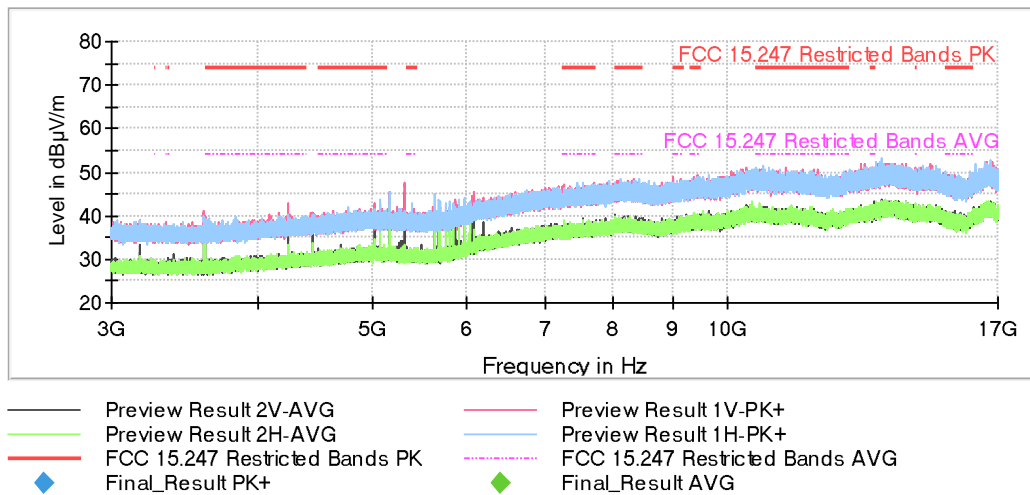


## FREQUENCY RANGE 1 - 3 GHz:

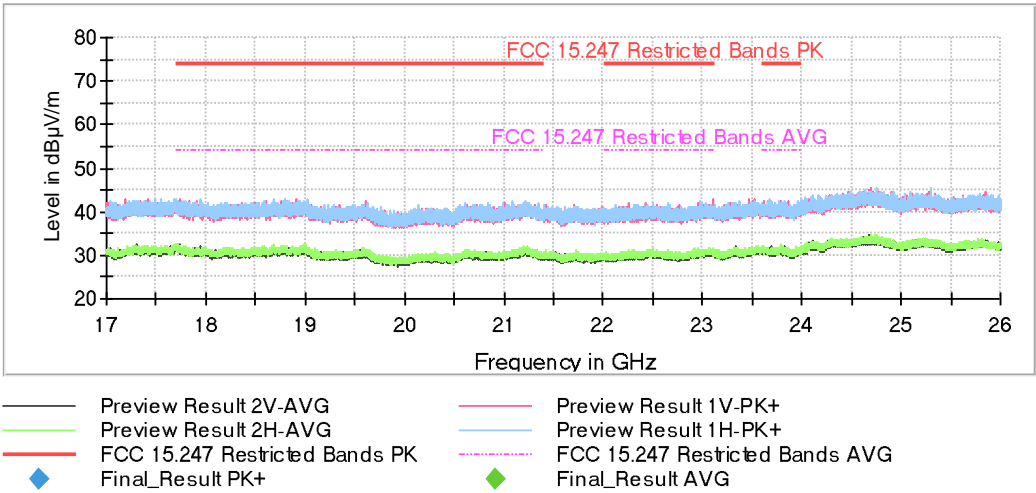


The peaks above the highest limit are the carrier frequencies of BT EDR (Chipset #1), BT EDR (Chipset #2) and WLAN 2.4 GHz.

## FREQUENCY RANGE 3 - 17 GHz:



FREQUENCY RANGE 17 - 26 GHz:



• **Simultaneous transmission mode BT EDR Chipset #1, BT EDR Chipset #2, WLAN 5 GHz band U-NII-1**

Bluetooth EDR 8DPSK (Chipset #1):  
Bluetooth EDR PI4-DQPSK (Chipset #2):  
WLAN 5 GHz 802.11 ax:

Middle Channel (2441 MHz).  
Low Channel (2402 MHz).  
Low Channel (5210 MHz). BW: 80 MHz. MCS0.  
RU 26 Offset 36.

LIMIT: The spurious frequencies were measured at 3 meters. The limit of the test is determined by:

Frequency Range	Detector	Limit at 3m (dBµV/m)
30 MHz to 88 MHz	Quasi-peak	40 dBµV/m
88 MHz to 216 MHz	Quasi-peak	43.5 dBµV/m
216 MHz to 960 MHz	Quasi-peak	46 dBµV/m
960 MHz to 1 GHz	Quasi-peak	54 dBµV/m
1 GHz to 26 GHz	Peak	74 dBµV/m
26 to 40 GHz	Peak	68.23 dBµV/m (*) or 74 dBµV/m (**)
1 to 40 GHz	Average	54 dBµV/m (**)

(\*) Radiated emissions which fall in the non-restricted bands.

(\*\*) Radiated emissions which fall in the restricted bands, as defined in §15.205(a).

**Frequency range 30 MHz - 1 GHz:**

Spurious frequencies at less than 20 dB below the limit.

Spurious frequency (MHz)	Emission Level (dBµV/m)	Polarization	Detector
874.9912	40.33	V	Quasi Peak

Measurement Uncertainty (dB):  $\leq \pm 5.03$

**Frequency range 1 - 40 GHz:**

Spurious frequencies at less than 20 dB below the limit.

Spurious frequency (GHz)	Emission Level (dBµV/m)	Polarization	Detector
1.3747	43.05	V	Peak

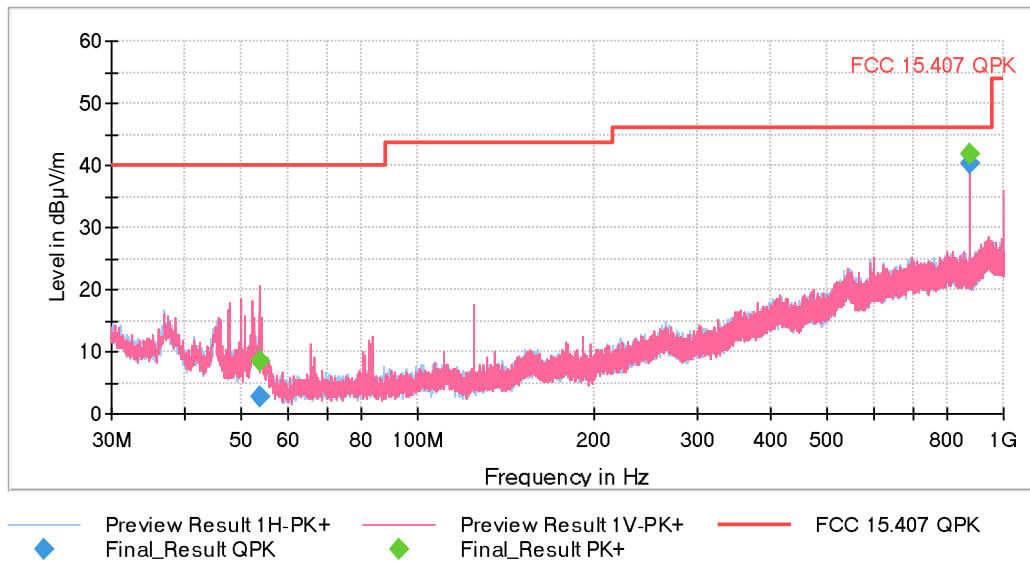
Measurement Uncertainty (dB): 1 GHz – 6.5 GHz  $\leq \pm 4.11$   
6.5 GHz – 17 GHz  $\leq \pm 4.32$   
17 GHz – 26.5 GHz  $\leq \pm 4.58$   
26.5 GHz – 40 GHz  $\leq \pm 4.75$

Verdict: PASS

The measurement settings for each range of frequency is as follows:

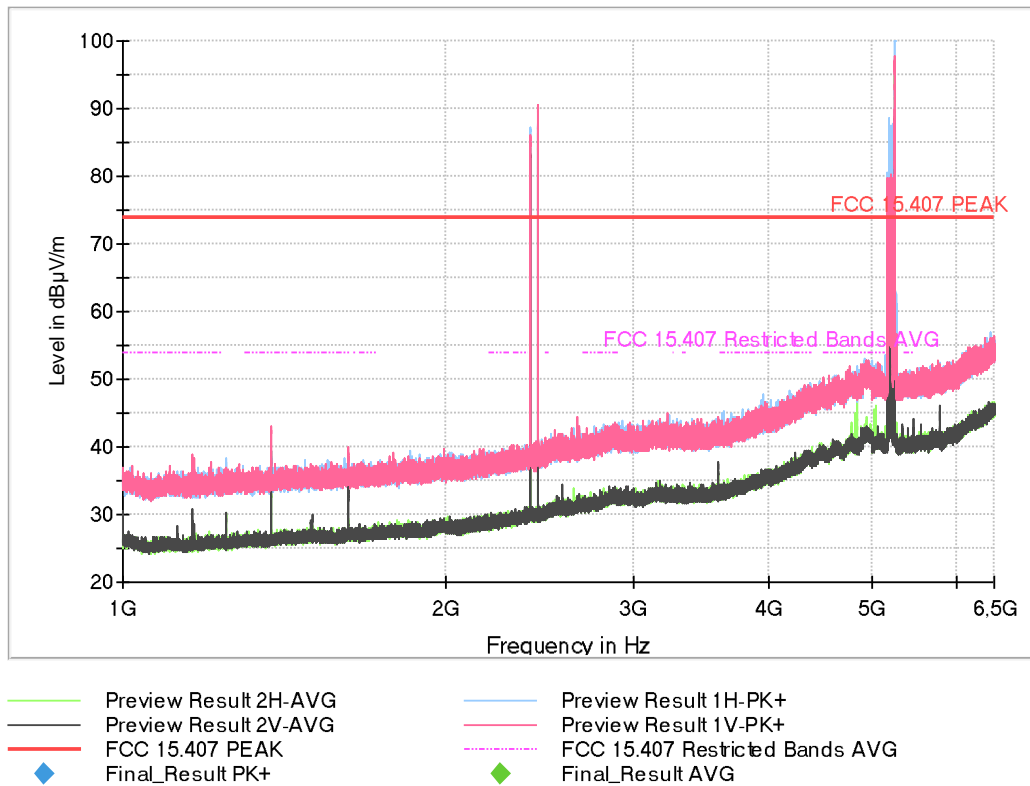
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW 44] 30 MHz - 1 GHz	30,312 kHz	PK+	100 kHz	1 s	30 dB
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW 44] 1 GHz - 6,5 GHz	100 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW 44] 6,5 GHz - 17 GHz	105 kHz	PK+ ; AVG	1 MHz	1 s	30 dB
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW 44] 17 GHz - 40 GHz	766,667 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

#### FREQUENCY RANGE 30 MHz - 1 GHz:



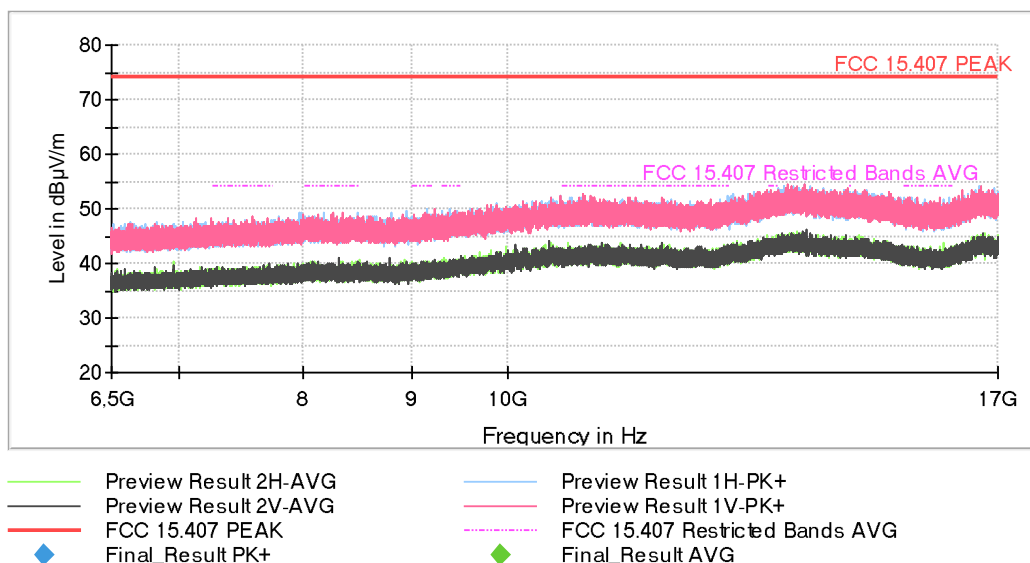
## FREQUENCY RANGE 1 – 6.5 GHz:

Full Spectrum

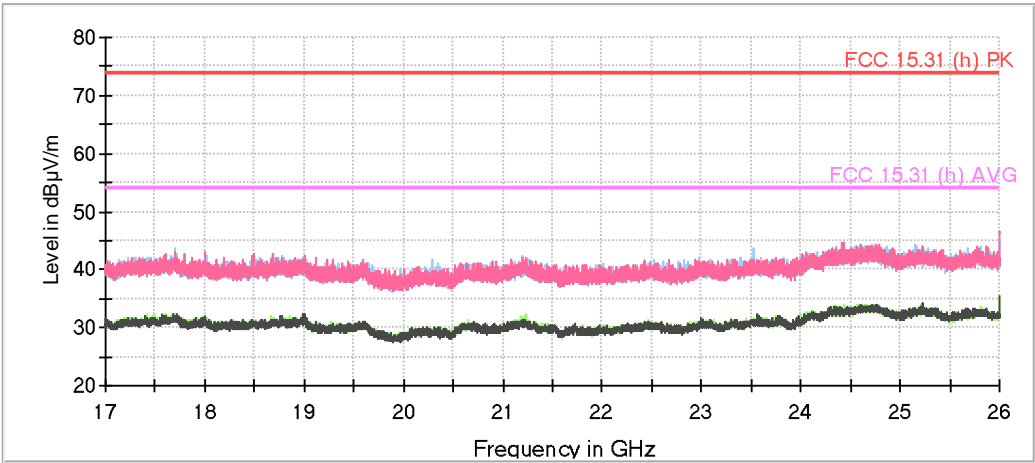


The peaks above the highest limit are the carrier frequencies of BT EDR (Chipset #1),  
BT EDR (Chipset #2) and WLAN 5 GHz.

## FREQUENCY RANGE 6.5 - 17 GHz:

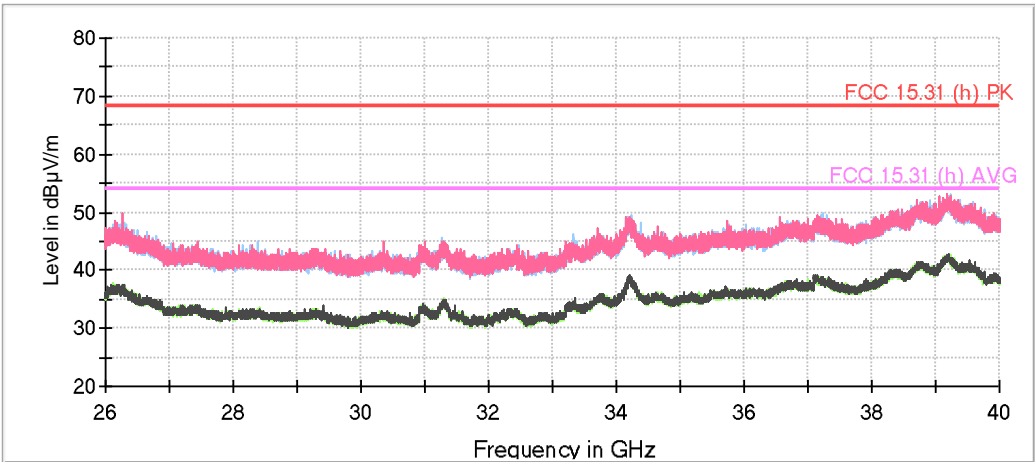


FREQUENCY RANGE 17 - 26 GHz:



Preview Result 2H-AVG      Preview Result 1H-PK+      Preview Result 2V-AVG  
Preview Result 1V-PK+      FCC 15.31 (h) PK      FCC 15.31 (h) AVG  
Final\_Result PK+      Final\_Result AVG

FREQUENCY RANGE 26 - 40 GHz:



Preview Result 2H-AVG      Preview Result 1H-PK+      Preview Result 2V-AVG  
Preview Result 1V-PK+      FCC 15.31 (h) PK      FCC 15.31 (h) AVG  
Final\_Result PK+      Final\_Result AVG

• **Simultaneous transmission mode BT EDR Chipset #1, BT EDR Chipset #2, WLAN 5 GHz band U-NII-3**

Bluetooth EDR 8DPSK (Chipset #1):  
Bluetooth EDR PI4-DQPSK (Chipset #2):  
WLAN 5 GHz 802.11 ax:

Middle Channel (2441 MHz).  
Low Channel (2402 MHz).  
High Channel (5745 MHz). BW: 20 MHz. MCS0.  
RU 26 Offset 0.

LIMIT: The spurious frequencies were measured at 3 meters. The limit of the test is determined by:

Frequency Range	Detector	Limit at 3m (dBµV/m)
30 MHz to 88 MHz	Quasi-peak	40 dBµV/m
88 MHz to 216 MHz	Quasi-peak	43.5 dBµV/m
216 MHz to 960 MHz	Quasi-peak	46 dBµV/m
960 MHz to 1 GHz	Quasi-peak	54 dBµV/m
1 GHz to 26 GHz	Peak	74 dBµV/m
26 to 40 GHz	Peak	68.23 dBµV/m (*) or 74 dBµV/m (**)
1 to 40 GHz	Average	54 dBµV/m (**)

(\*) Radiated emissions which fall in the non-restricted bands.

(\*\*) Radiated emissions which fall in the restricted bands, as defined in §15.205(a).

**Frequency range 30 MHz - 1 GHz:**

Spurious frequencies at less than 20 dB below the limit.

Spurious frequency (MHz)	Emission Level (dBµV/m)	Polarization	Detector
875.0215	40.24	V	Quasi Peak

Measurement Uncertainty (dB):  $\leq \pm 5.03$

**Frequency range 1 - 40 GHz:**

No spurious frequencies at less than 20 dB below the limit.

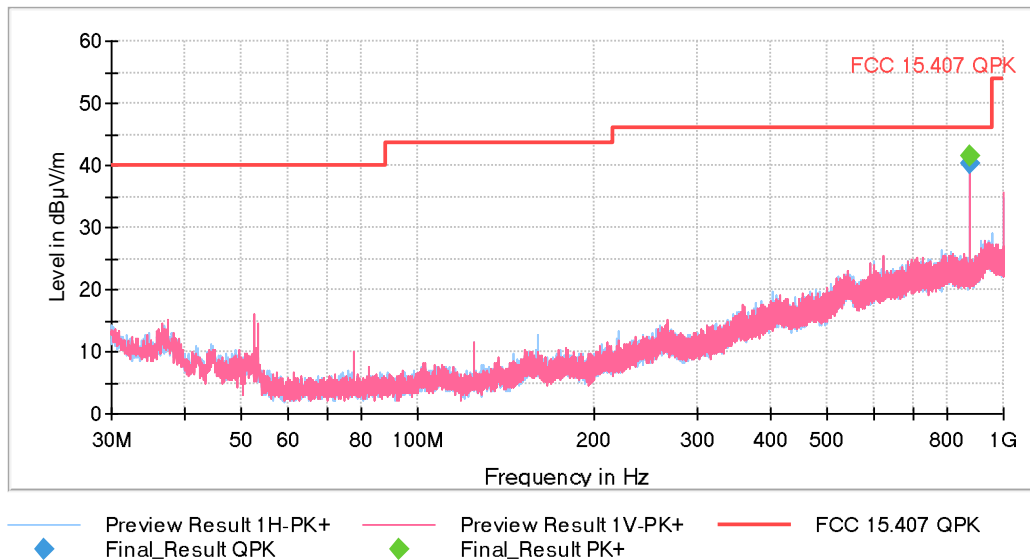
Measurement Uncertainty (dB): 1 GHz – 6.5 GHz  $\leq \pm 4.11$   
6.5 GHz – 17 GHz  $\leq \pm 4.32$   
17 GHz – 26.5 GHz  $\leq \pm 4.58$   
26.5 GHz – 40 GHz  $\leq \pm 4.75$

Verdict: PASS

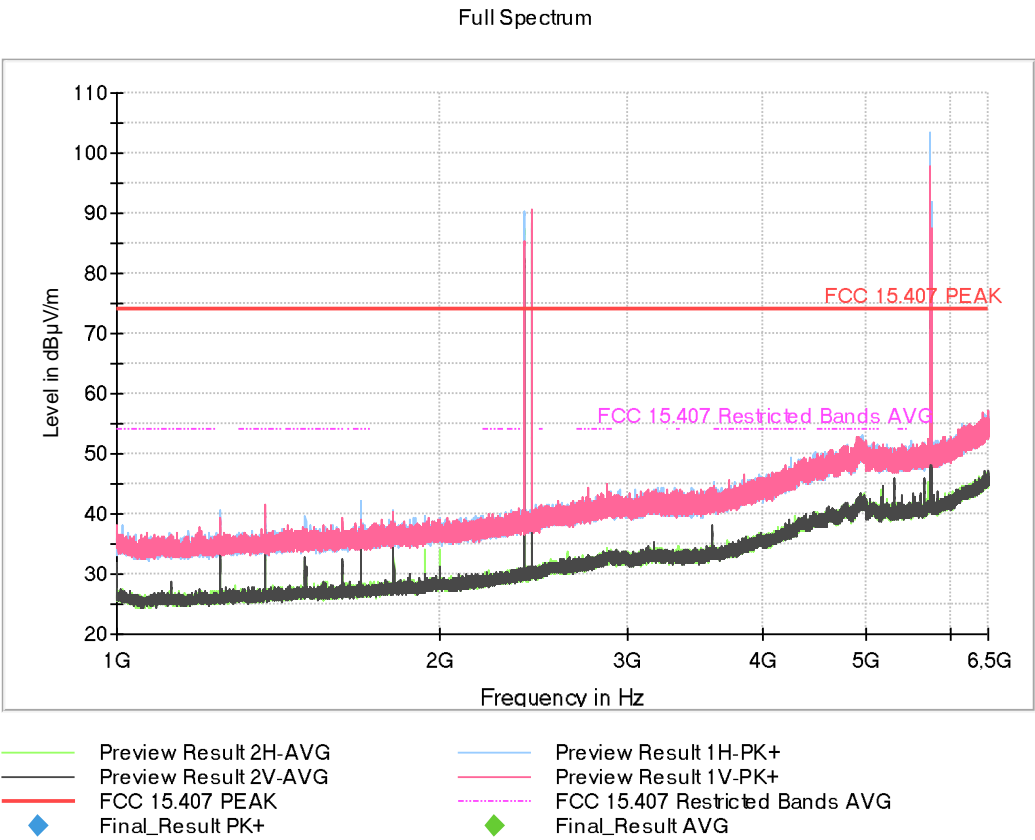
The measurement settings for each range of frequency is as follows:

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW 44] 30 MHz - 1 GHz	30,312 kHz	PK+	100 kHz	1 s	30 dB
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW 44] 1 GHz - 6,5 GHz	100 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW 44] 6,5 GHz - 17 GHz	105 kHz	PK+ ; AVG	1 MHz	1 s	30 dB
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW 44] 17 GHz - 40 GHz	766,667 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

#### FREQUENCY RANGE 30 MHz - 1 GHz:

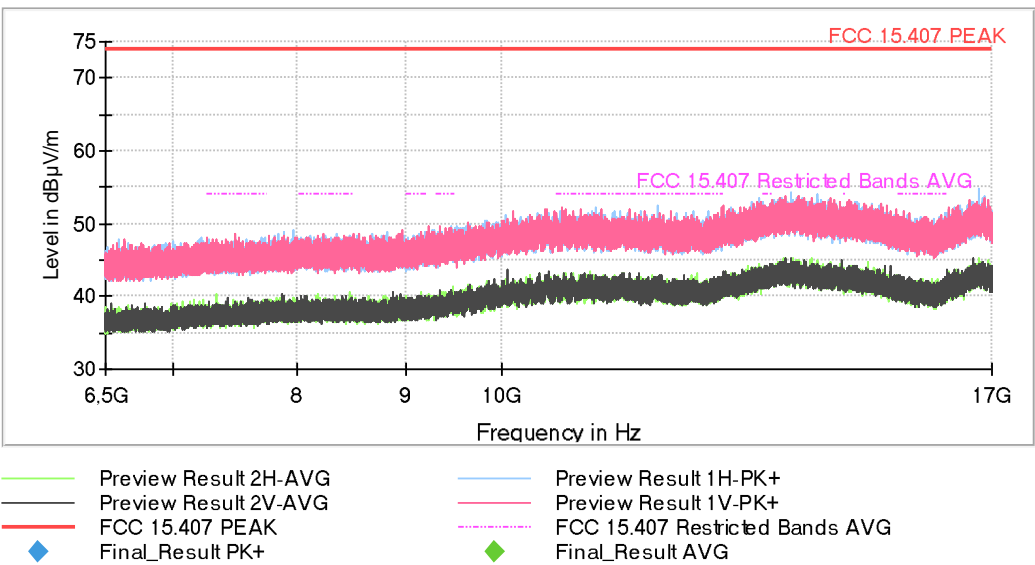


FREQUENCY RANGE 1 – 6.5 GHz:

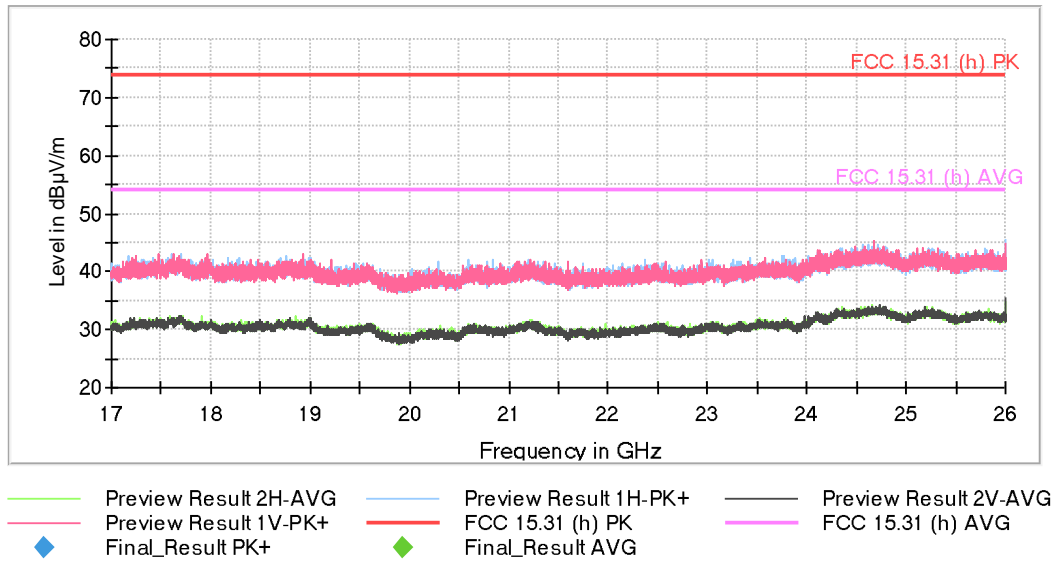


The peak above the highest limit are the carrier frequencies of BT EDR (Chipset #1),  
BT EDR (Chipset #2) and WLAN 5 GHz.

FREQUENCY RANGE 6.5 - 17 GHz:



## FREQUENCY RANGE 17 - 26 GHz:



## FREQUENCY RANGE 26 - 40 GHz:

