

ISED CABid: ES1909
Lab. Company Number: 4621A

Test Report No:
84807RRF.007A1

Partial Test Report

USA FCC 15.31(h), 15.209, 15.247, 15.407
CANADA RSS-247, RSS-Gen

(*) Identification of item tested	Headunit with Display and TP, USB, BT and WLAN
(*) Trademark	HARMAN
(*) Model and /or type reference	SPACE 4 BASE 1.2A
Other identification of the product	FCC ID: T8GSPACE4B12A IC: 6434A-SPACE4B12A
(*) Features	Bluetooth, WLAN HW version: PV SW version: 16
Applicant	HARMAN BECKER AUTOMOTIVE SYSTEMS GMBH BECKER-GOERING-STR. 16; 76307 KARLSBAD GERMANY
Test method requested, standard	<p>USA FCC Part 15.31(h) (10-1-25 Edition): Measurement standard.</p> <p>USA FCC Part 15.209 (10-1-25 Edition): Radiated emission limits; general requirements.</p> <p>USA FCC Part 15.247 (10-1-25 Edition): Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz.</p> <p>USA FCC Part 15.407 (10-1-25 Edition): Unlicensed National Information Infrastructure (U-NII) Devices. General technical requirements. Band U-NII-3 (5725 MHz – 5850 MHz).</p> <p>CANADA RSS-247 Issue 4, Jul. 2025.</p> <p>CANADA RSS-Gen Issue 5, Amendment 2, Feb. 2021.</p> <ul style="list-style-type: none"> - Emission limitations radiated with simultaneous transmissions. <p>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.</p> <p>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.</p> <p>Measurement Guidance for Certification of Licensed Digital Transmitters. 971168 D01 Power Meas License Digital Systems v03r01 dated April 9, 2018.</p>

	ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024: American National Standard for Testing Unlicensed Wireless Devices. ANSI C63.26-2015 IEEE/ANSI Standard for Testing of Transmitters Used in Licensed Radio Services.	
Approved by (name / position & signature)	José Manuel Gómez Galván EMC Consumer & RF Lab. Manager	 <small>Firmado digitalmente por 53680346W JOSE MANUEL GOMEZ (CA29507456) Fecha: 2026.10.06 11:17:56 +02'00'</small>
Date of issue	2026-10-06	
Report template No.	FDT08_27 (*) "Data provided by the client"	

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Competences and guarantees

DEKRA Testing and Certification is an FCC-recognized accredited testing laboratory with appropriate scope of accreditation that covers the performed tests in this report.

DEKRA Testing and Certification is an ISED-recognized accredited testing laboratory, CABid: ES1909, Company Number: 4621A, with the appropriate scope of accreditation that covers the performed tests in this report.

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

DEKRA Testing and Certification guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and it is based on the knowledge and technical facilities available at DEKRA Testing and Certification at the time of performance of the test.

DEKRA Testing and Certification is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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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 Testing and Certification S.A.U.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Testing and Certification S.A.U. and the Accreditation Bodies.

Uncertainty

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

The total uncertainty of the measurement system for the radiated emissions of the EUT from 30 MHz to 1 GHz is: Measurement uncertainty $\leq \pm 5.35$ dB (with factor $k=2$).

The total uncertainty of the measurement system for the radiated emissions of the EUT from 1 to 17 GHz is: Measurement uncertainty $\leq \pm 4.32$ dB (with factor $k=2$).

The total uncertainty of the measurement system for the radiated emissions of the EUT from 17 to 40 GHz is: Measurement uncertainty $\leq \pm 5.51$ dB (with factor $k=2$).

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 Headunit with Display and TP, USB, BT and WLAN.

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 results. The laboratory is not responsible for such information and it is not covered by accreditation.

Usage of samples

Samples undergoing test have been selected by: The client.

Id	Control Number	Description	Model	Serial N°	Date of Reception	Application
S/01	84807_6.1	Headunit	SPACE 4 BASE 1.2A	Z13137S283000058	2025-12-16	Element Under Test
S/01	80708_83.1	Main Harness	-	-	2025-03-31	Auxiliary Element
S/01	84807_10.1	USB Cable	-	-	2025-12-16	Auxiliary Element
S/01	84807_8.1	Module Circuit Board	-	-	2025-12-16	Auxiliary Element

Notes referenced to samples during the project:

Id	Type
S/01	Samples used for radiated tests.

Test sample description

Ports..... :	Port name and description		Cable				
			Specified max length [m]	Attached during test	Shielded		
	Main Connector (M1/L3 12V; M2 GND; B3 to GND; all other GPIOs floating)		2m	[X]	[]		
	USB Connector			[X]	[X]		
GPS/FVC/RVC			[X]	[X]			
Supplementary information to the ports..... :							
Rated power supply :	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	[]	AC:	[]	[]	[]	[]	[]
[X]	DC: 12V car battery /attenuator (9,5-15,5v normal operation)						
Rated Power..... :							
Clock frequencies..... :							
Other parameters :							
Software version..... :	16						
Hardware version :	PV						
Dimensions in cm (W x H x D) ... :							
Mounting position :	[]	Table top equipment					
	[]	Wall/Ceiling mounted equipment					
	[]	Floor standing equipment					
	[]	Hand-held equipment					
	[X]	Other: automotive (car vehicles, agricultural vehicles, motor bikes)					
Modules/parts..... :	Module/parts of test item			Type		Manufacturer	
							
Accessories (not part of the test item) :	Description			Type		Manufacturer	
							
Documents as provided by the applicant..... :	Description			File name		Issue date	
							

Identification of the client

HARMAN BECKER AUTOMOTIVE SYSTEMS GMBH
BECKER-GOERING-STR. 16; 76307 KARLSBAD GERMANY

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U. Severo Ochoa 6. 29590, Málaga, Spain (Location B)
Date (start)	2026-03-11
Date (finish)	2026-03-11

Document history

Report number	Date	Description
84807RRF.007	2026-05-14	First release.
84807RRF.007A1	2026-10-06	Second release. Modification due to typos. This test report cancel and replaces to 84807RRF.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 semi-anechoic chamber, 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: Valentín Andarias.

Used instrumentation:

Control No.	Equipment	Model	Manufacturer	Next Calibration
04825	SEMIANECHOIC ABSORBER LINED CHAMBER II	FACT 3 200 STP	ETS LINDGREN	N/A
04826	SHIELDED ROOM	S101	ETS LINDGREN	N/A
07547	TEMPERATURE AND HUMIDITY PROBE	HWg-STE	HW GROUP	2026-04-22
07548	TEMPERATURE AND HUMIDITY PROBE	HWg-STE	HW GROUP	2026-04-22
07817	EMI TEST RECEIVER 2 Hz - 44 GHz	ESW44	ROHDE AND SCHWARZ	2026-07-01
06144	PRE-AMPLIFIER G>40 dB, 10 MHz - 6 GHz	BLNA 0160-01N	BONN ELEKTRONIK	2026-09-05
06143	HYBRID BILOG ANTENNA 30 MHz - 6 GHz	3142E	ETS LINDGREN	2027-01-22
06021	ATTENUATOR 3 dB, 2 W, DC - 6 GHz	50HN-03	JFW	2027-03-13
03783	PRE-AMPLIFIER G>30 dB, 1-18 GHz	BLMA 0118-3A	BONN ELEKTRONIK	2026-03-15
06496	HORN ANTENNA 1-18 GHz	BBHA 9120 D	SCHWARZBECK MESS-ELEKTRONIK	2026-12-01
06158	SIGNAL AND SPECTRUM ANALYZER 10 Hz - 40 GHz	FSV40	ROHDE AND SCHWARZ	2028-03-19
10573	PRE-AMPLIFIER G>46dB 18-40 GHz	BLMA 1840-5G	BONN ELEKTRONIK	2027-04-07
04657	HORN ANTENNA 18-40 GHz	BBHA 9170	SCHWARZBECK MESS-ELEKTRONIK	2026-06-12
04848	SOFTWARE FOR EMC/RF TESTING	EMC32	ROHDE AND SCHWARZ	N/A

Sample Calculation

For radiated measurements:

Values measures by the test receiver / analyzer are converted to field strength, in dBuV/m, at the regulatory distance using the following calculation:

$$\text{Unwanted Lvl (dBuV/m)} = \text{Raw Rec (dBuV)} + \text{Preamp (dB)} + \text{Trd Corre. (dB/m)} + \text{SigPath (dB)}$$

Where,

Raw Rec (dBuV): Measured voltage in the receiver / spectrum analyzer in dBuV

Preamp (dB): Path losses due to preamplifier

Trd Corr. (dB/m): Antenna factor in dB/m

SigPath (dB) = Cable loss (dB) – External Gain amplifier (dB) – Distance factor (dB)

Cable loss (dB): Cable loss

External Gain amplifier (dB): Gain from external amplifier (when used)

Distance factor (dB): Distance factor in dB. When measurement distance is different to limit distance

The field strength, calculated by this way is compared with the regulatory limit.

Testing verdicts

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

Summary

FCC 15 / CANADA RSS-247, RSS-Gen PARAGRAPH			
Requirement – Test case	Verdict	Remark	Location
FCC 15.31 (h), 15.209 (a), 15.247 (d), 15.407 (b) / RSS-247 5.5, 6.2.1.2 and 6.2.2.2, RSS-Gen 8.9 Emission limitations radiated (Transmitter)	P	(1)	B
<u>Supplementary information and remarks:</u> (1) Only simultaneous transmission radiated spurious emission test was requested.			

Appendix A: Test results

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FCC 15.31 (h), 15.209 (a), 15.247 (d), 15.407 (b) / RSS-247 5.5, 6.2.1.2 and 6.2.2.2, RSS-Gen 8.9

Emission limitations radiated (Transmitter)..... 16

TEST CONDITIONS

(*): Data provided by the Applicant.

POWER SUPPLY (*):

Vnominal:	12 Vdc
Type of Power Supply:	Vehicle Battery

ANTENNA (*):

Type of Antenna:	Internal
Antenna Gain:	
Bluetooth EDR (Chip 1):	0,34 dBi
Bluetooth EDR (Chip 2):	-0,4 dBi
Bluetooth EDR (Chip 3):	1,37 dBi
WLAN 2.4 GHz:	-0,4 dBi
WLAN 5 GHz U-NII-1:	5,81 dBi

TEST FREQUENCIES:

Frequency range	Technologies	Modulations	Worst case
2.4 GHz	Bluetooth EDR (Chip 1)	Bluetooth EDR (Chip 1) (GFSK, Pi/4-DQPSK, 8DPSK)	Bluetooth EDR (Chip 1) (Low Channel, GFSK)
	Bluetooth EDR (Chip 2)	Bluetooth EDR (Chip 2) (GFSK, Pi/4-DQPSK, 8DPSK)	Bluetooth EDR (Chip 2) (Middle Channel, Pi/4-DQPSK)
	Bluetooth EDR (Chip 3)	Bluetooth EDR (Chip 3) (GFSK, Pi/4-DQPSK, 8DPSK)	Bluetooth EDR (Chip 3) (High Channel, GFSK)
	WLAN 2.4 GHz	WLAN 2.4 GHz (802.11 bgn20)	WLAN 2.4 GHz (Middle Channel, 802.11 b)
5 GHz	WLAN 5 GHz U-NII-1	WLAN 5 GHz U-NII-1 (a, ac, n)	WLAN 5 GHz U-NII-1 (Low Channel, 802.11 ac40)

The test set-up was made according to the general provisions of FCC 558074 D01 15.247 Meas Guidance v05r02 dated April 2, 2019.

The EUT was tested in the following operating mode during the transmitter tests:

For cellular technologies, the EUT was controlled by a communication tester to transmit at maximum power on the test channels and modes as required.

TEST FREQUENCIES FOR SIMULTANEOUS TRANSMISSION MODE RADIATED TESTS:

The EUT was configured to simultaneously transmit the following signals at maximum output power:

1. Simultaneous transmission mode Bluetooth EDR (Chip 1), Bluetooth EDR (Chip 3), WLAN 2.4 GHz:

Bluetooth EDR (Chip 1):	Low Channel (2402 MHz). GFSK (DH5).
Bluetooth EDR (Chip 3):	High Channel (2480 MHz). GFSK (DH5).
WLAN 2.4 GHz:	Middle Channel (2437 MHz). 802.11 b (DSS 6 Mbit/s).

2. Simultaneous transmission mode Bluetooth EDR (Chip 1), Bluetooth EDR (Chip 2), Bluetooth EDR (Chip 3), WLAN 5 GHz U-NII-1:

Bluetooth EDR (Chip 1):	Low Channel (2402 MHz). GFSK (DH5).
Bluetooth EDR (Chip 2):	Middle Channel (2440 MHz). Pi/4-DQPSK (2-DH5).
Bluetooth EDR (Chip 3):	High Channel (2480 MHz). GFSK (DH5).
WLAN 5 GHz U-NII-1:	Low Channel (5190 MHz). 802.11 ac H40 (OFDMA MCS0).

FCC 15.31 (h), 15.209 (a), 15.247 (d), 15.407 (b), 22.917 (a), 24.238 (a), 27.53 (m) (4)
RSS-132 5.5, RSS-133 6.5, RSS-199 5.6, RSS-247 5.5, 6.2.1.2 and 6.2.2.2, RSS-Gen 8.9
Emission limitations radiated (Transmitter)

Limits:

Bluetooth EDR, WLAN 2.4 GHz, WLAN 5 GHz:

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 specified when measuring with peak detector function corresponding to 20 dB above the indicated values in the table above.

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz (68.23 dBµV/m at 3 m distance) at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

RSS-247. Attenuation below the general field strength limits specified in RSS-Gen is not required.

Method:

The measurement was performed with the EUT inside a semi-anechoic chamber.

The spectrum was scanned from 30 MHz to at least the 10th harmonic of the highest frequency of the co-located radios up to 40 GHz.

The EUT was placed on a non-conductive stand at a 3-meter distance from the measuring antenna for measurements up to 17 GHz and at 1.5-meter distance for measurements above 17 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. Measurements were made in both horizontal and vertical planes of polarization.

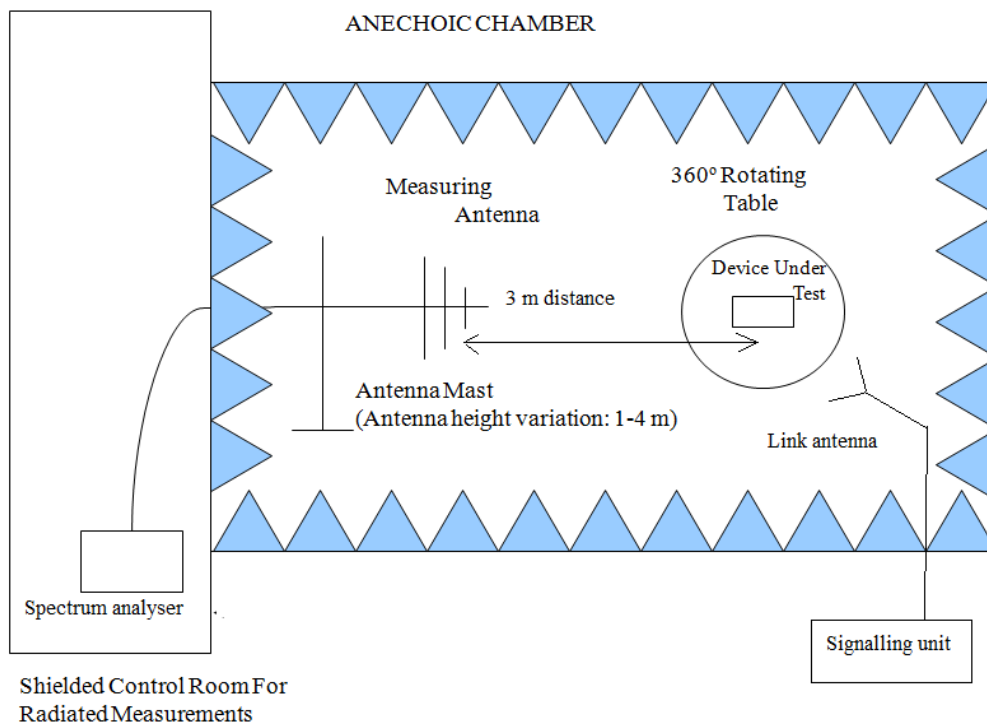
The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

For radiated measurements above 17 GHz performed at a distance closer than the distance specified in standard, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

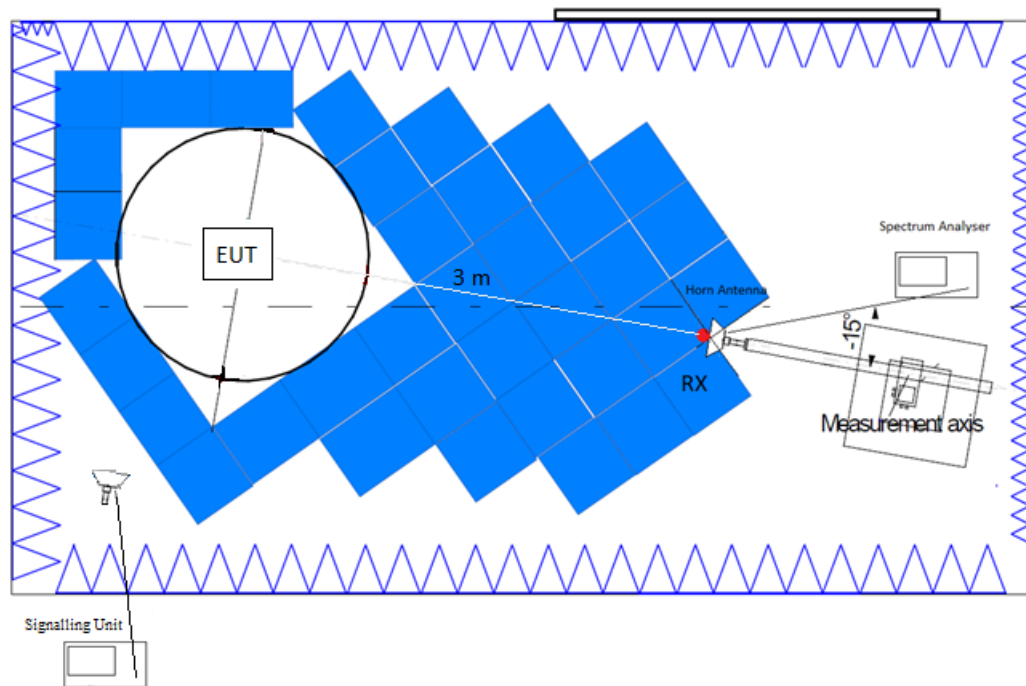
These measurements have been performed in order to check the impact of the Co-Location of all radio interfaces (that can transmit simultaneously).

Test setup:

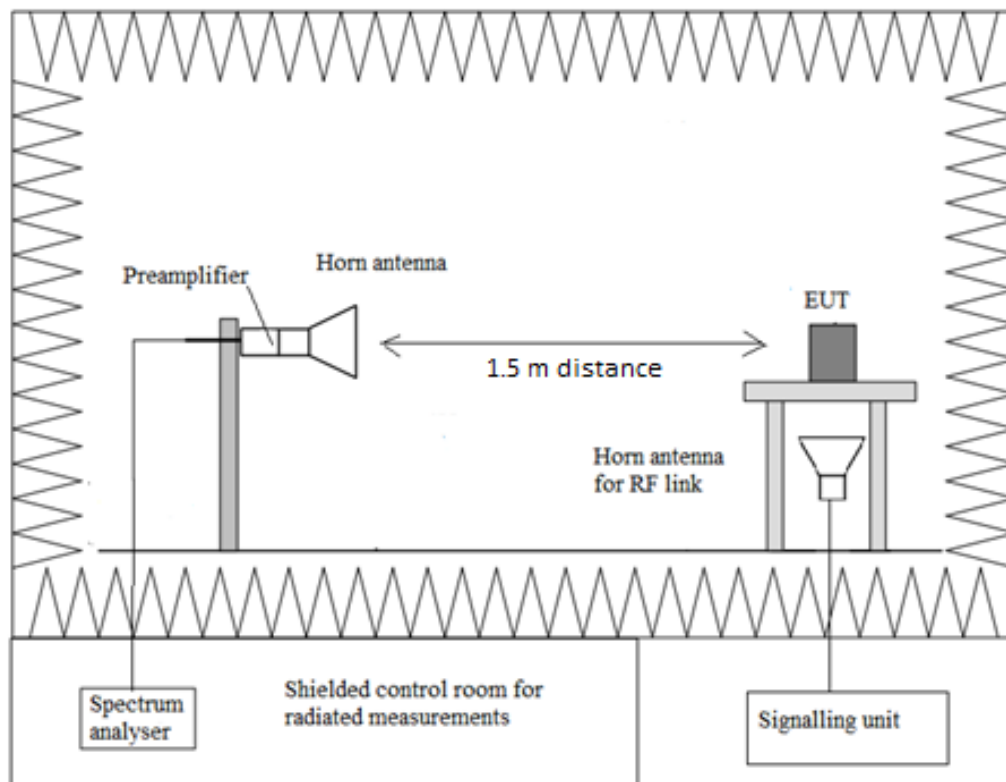
Radiated measurements below 1 GHz.



Radiated measurements between 1 GHz and 17 GHz.



Radiated measurements above 17 GHz.



Results:

1. Simultaneous transmission mode Bluetooth EDR (Chip 1), Bluetooth EDR (Chip 3), WLAN 2.4 GHz:

Bluetooth EDR (Chip 1): Low Channel (2402 MHz). GFSK (DH5).
Bluetooth EDR (Chip 3): High Channel (2480 MHz). GFSK (DH5).
WLAN 2.4 GHz: Middle Channel (2437 MHz). 802.11 b (DSS 6 Mbit/s).

Frequency range 30 MHz - 1 GHz:

Spurious frequencies at less than 20 dB below the limit:

Frequency (MHz)	QuasiPeak (dBμV/m)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol
30.582000	30.39	---	40.00	9.61	H
30.582000	---	33.29	---	---	H
45.714000	12.09	---	40.00	27.91	H
45.714000	---	16.95	---	---	H
47.799500	---	24.26	---	---	H
47.799500	21.36	---	40.00	18.64	H
48.430000	17.44	---	40.00	22.56	H
48.430000	---	20.62	---	---	H

Frequency range 1 - 26 GHz:

Spurious frequencies at less than 20 dB below the limit:

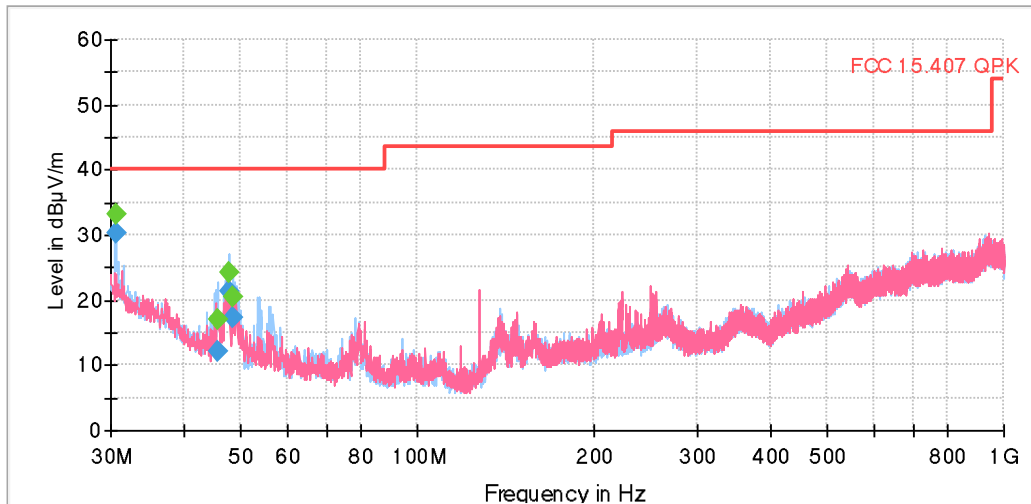
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol
2360.307692	---	43.32	54.00	10.68	H
2360.307692	54.06	---	74.00	19.94	H

Verdict

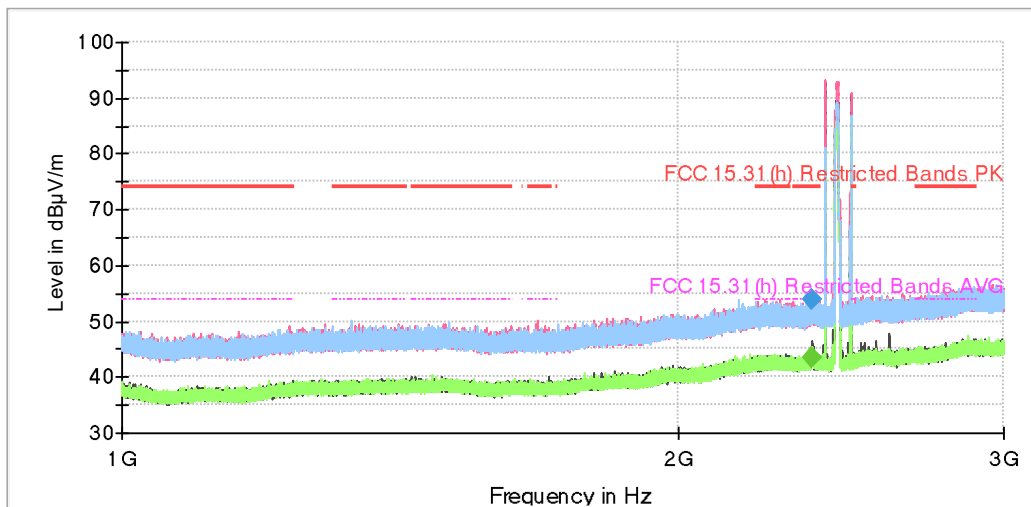
Pass

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 1 GHz	4.85 kHz	PK+	100 kHz	1 s	30 dB
1 GHz - 7 GHz	200 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
7 GHz - 17 GHz	333.333 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
17 GHz - 40 GHz	766.667 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

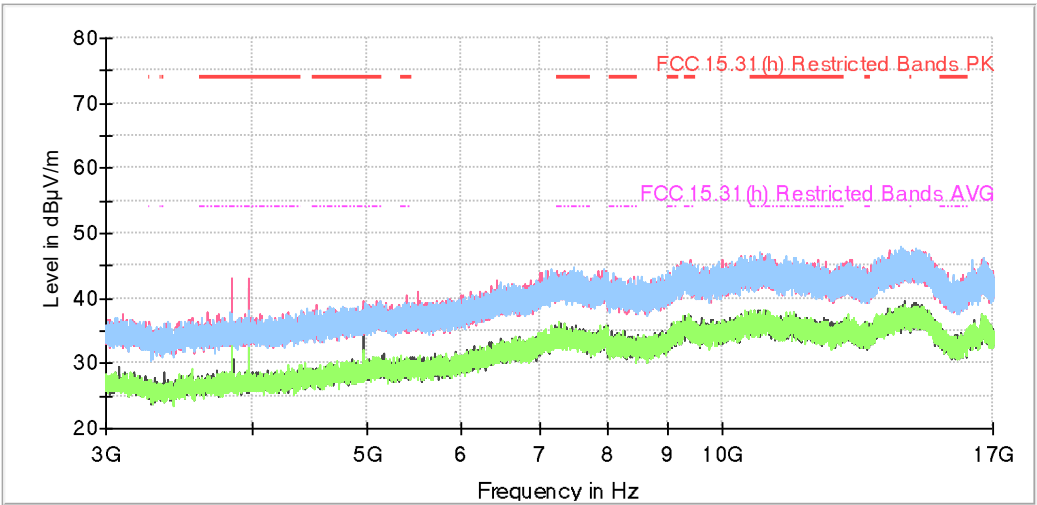
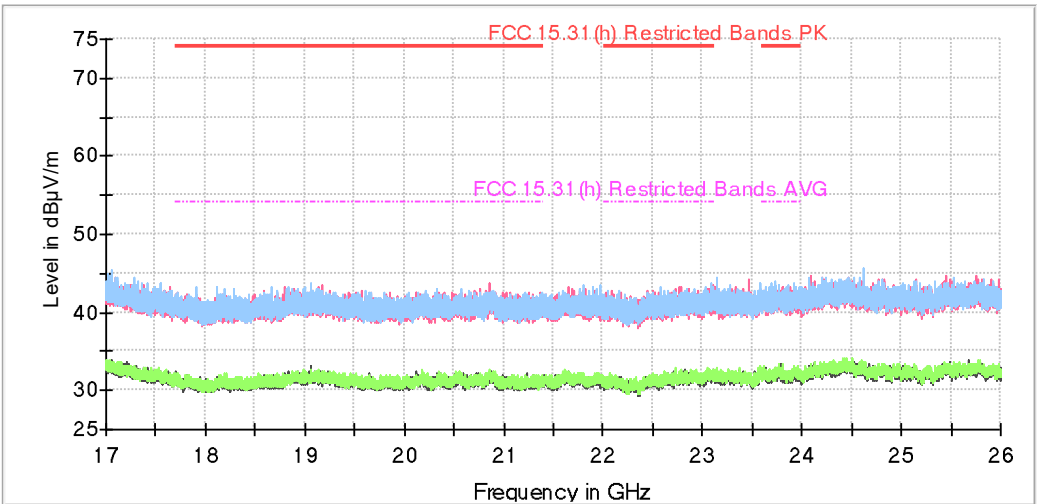
FREQUENCY RANGE 30 MHz - 1 GHz:



FREQUENCY RANGE 1 - 26 GHz:



The peaks above the limit are the Bluetooth EDR (Chip 1) carrier frequency (2402 MHz), the WLAN 2.4 GHz carrier frequency (2437 MHz) and the Bluetooth EDR (Chip 3) GHz carrier frequency (2480 MHz).



2. Simultaneous transmission mode Bluetooth EDR (Chip 1), Bluetooth EDR (Chip 2), Bluetooth EDR (Chip 3), WLAN 5 GHz U-NII-1:

Bluetooth EDR (Chip 1):	Low Channel (2402 MHz). GFSK (DH5).
Bluetooth EDR (Chip 2):	Middle Channel (2440 MHz). Pi/4-DQPSK (2-DH5).
Bluetooth EDR (Chip 3):	High Channel (2480 MHz). GFSK (DH5).
WLAN 5 GHz U-NII-1:	Low Channel (5190 MHz). 802.11 ac40 (OFDMA MCS0).

Frequency range 30 MHz - 1 GHz:

Spurious frequencies at less than 20 dB below the limit:

Frequency (MHz)	QuasiPeak (dBμV/m)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol
30.145500	18.11	---	40.00	21.89	H
30.145500	---	23.31	---	---	H
30.582000	---	33.58	---	---	H
30.582000	30.43	---	40.00	9.57	H
47.751000	14.36	---	40.00	25.64	H
47.751000	---	18.50	---	---	H
48.430000	14.97	---	40.00	25.03	H
48.430000	---	18.61	---	---	H
58.712000	7.58	---	40.00	32.42	H
58.712000	---	12.59	---	---	H

Frequency range 1 - 26 GHz:

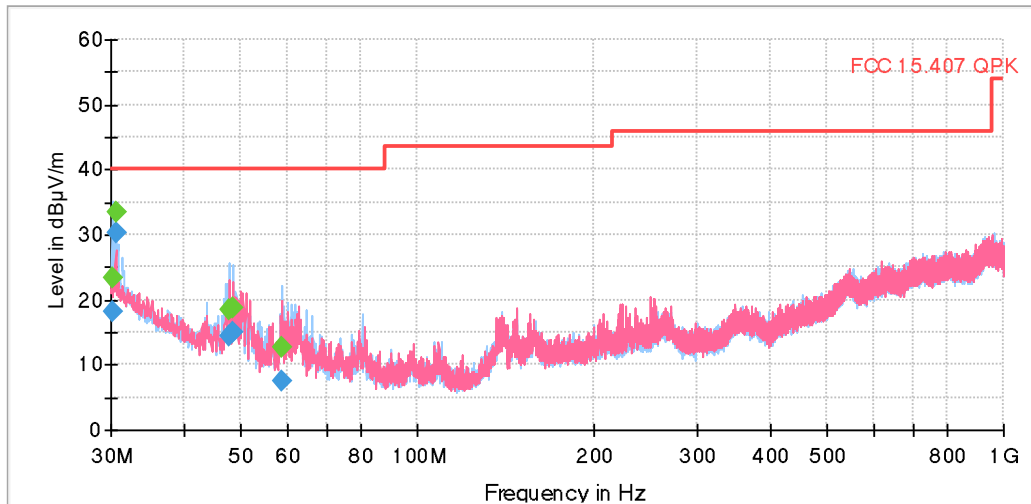
No spurious frequencies at less than 20 dB below the limit.

Verdict

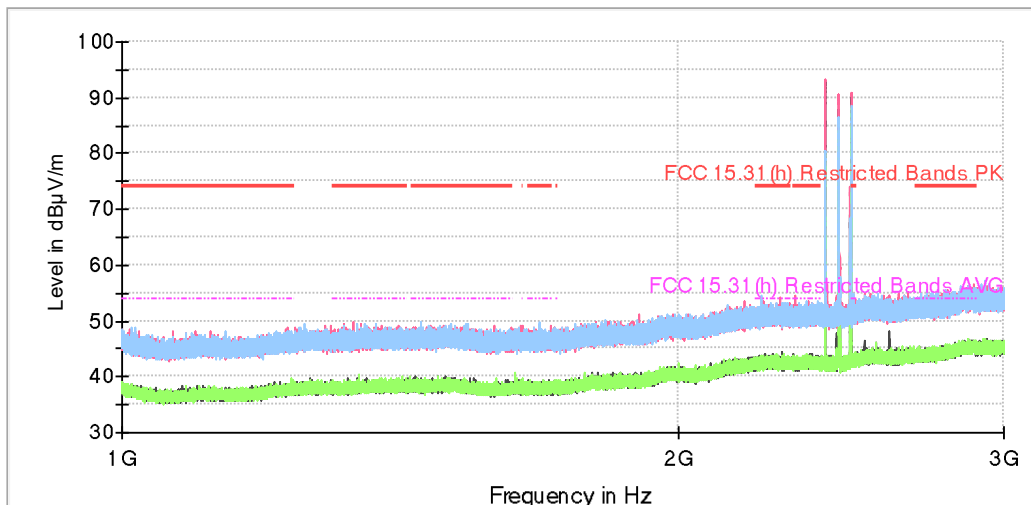
Pass

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 1 GHz	4.85 kHz	PK+	100 kHz	1 s	30 dB
1 GHz - 7 GHz	200 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
7 GHz - 17 GHz	333.333 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
17 GHz - 40 GHz	766.667 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

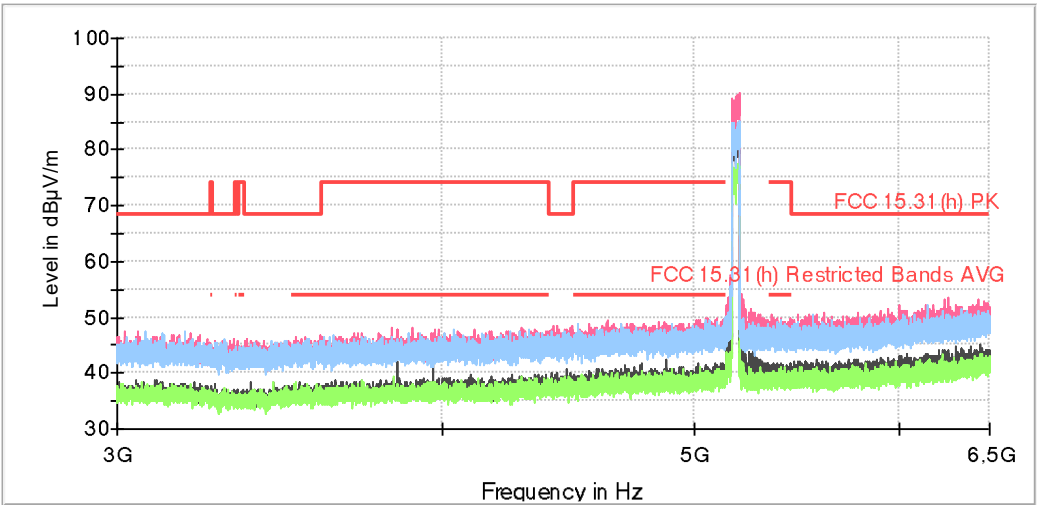
FREQUENCY RANGE 30 MHz - 1 GHz:



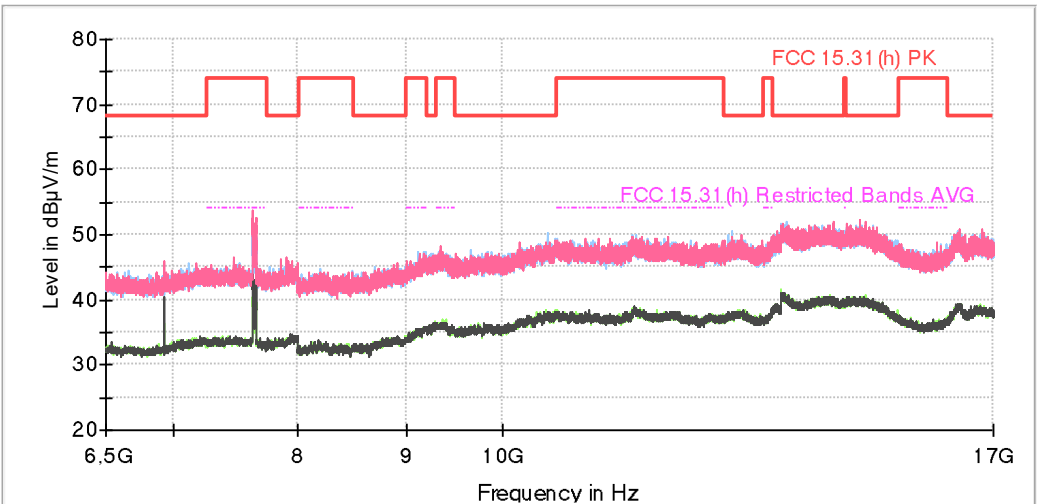
FREQUENCY RANGE 1 - 26 GHz:



The peaks above the limit are the Bluetooth EDR (Chip 1) carrier frequency (2402 MHz), the Bluetooth EDR (Chip 2) carrier frequency (2440 MHz) and the Bluetooth EDR (Chip 3) GHz carrier frequency (2480 MHz).



The peak above the limit is the WLAN 5 GHz U-NII-1 carrier frequency (5190 MHz).



Full Spectrum

