

Prüfbericht-Nr.: Test report no.:		CN22Y9WY 001	Auftrags-Nr.: Order no.:		244417092	Seite 1 von 49 Page 1 of 49	
Kunden-Referenz-Nr.: Client reference no.:		P00645001	Auftragsdatum: Order date:		2022-11-11		
Auftraggeber: Client:		FCC: Decathlon America LLC 1160 Battery Street, Suite 100, San Francisco, CA 94111, United States IC: DECATHLON SE 4 Boulevard de Mons, VILLENEUVE D'ASCQ, 59650, France					
Prüfgegenstand: Test item:		Treadmill					
Bezeichnung / Typ-Nr.: Identification / Type no.:		W900 110V US CA FCC ID:2A8UOW900 IC:244468-W900					
Auftrags-Inhalt: Order content:		Complete test					
Prüfgrundlage: Test specification:		FCC CFR47 Part 15, Subpart C Section 15.247 RSS-Gen Issue 5, Amendment 2, February 2021 RSS-247 Issue 2, February 2017 ANSI C63.10: 2013					
Wareneingangsdatum: Date of sample receipt:		2022-11-08					
Prüfmuster-Nr.: Test sample no.:		A003368355-001					
Prüfzeitraum: Testing period:		Refer to test report					
Ort der Prüfung: Place of testing:		TÜV Rheinland (Shanghai) Co., Ltd.					
Prüflaboratorium: Testing laboratory:		TÜV Rheinland (Shanghai) Co., Ltd.					
Prüfergebnis*: Test result*:		Pass					
geprüft von: tested by:		X Yanli Fan		genehmigt von: authorized by:		X Elliot Zhang	
Datum: Date:		2023-05-15 Signed by: Yanli Fan		Ausstellungsdatum: Issue date:		2023-05-15 Signed by: Elliot Zhang	
Stellung / Position:		PE/Yanli Fan		Stellung / Position:		Reviewer/Elliot Zhang	
Sonstiges / Other:		HVIN: W900 110V US CA Model code: 8405295 Conception code: 300689 Supplier name: Zhejiang Arcana Power Sports Supplier code: 46559 Test request no.: L074-03-2201-0003					
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:		Prüfmuster vollständig und unbeschädigt Test item complete and undamaged					
* Legende:		P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)		N/A = nicht anwendbar	
* Legend:		P(ass) = passed a.m. test specification(s)		F(ail) = failed a.m. test specification(s)		N/A = not applicable	
						N/T = nicht getestet	
						N/T = not tested	
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>							

TEST SUMMARY

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 6dB & 99% BANDWIDTH

RESULT: Pass

5.1.3 PEAK OUTPUT POWER

RESULT: Pass

5.1.4 POWER SPECTRAL DENSITY

RESULT: Pass

5.1.5 CONDUCTED BAND EDGE AND OUT-OF BAND EMISSIONS

RESULT: Pass

5.2.1 CONDUCTED EMISSION

RESULT: Pass

5.3.1 RADIATED BAND-EDGE

RESULT: Pass

5.3.2 RADIATED SPURIOUS EMISSION

RESULT: Pass

Contents

1.	GENERAL REMARKS	4
1.1	COMPLEMENTARY MATERIALS	4
2.	TEST SITES	4
2.1	TEST FACILITIES.....	4
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS.....	5
2.3	TRACEABILITY	5
2.4	CALIBRATION	5
2.5	MEASUREMENT UNCERTAINTY.....	6
3.	GENERAL PRODUCT INFORMATION	7
3.1	PRODUCT FUNCTION AND INTENDED USE	7
3.2	RATINGS AND SYSTEM DETAILS	7
3.3	INDEPENDENT OPERATION MODES	8
3.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS	8
3.5	SUBMITTED DOCUMENTS.....	8
4.	TEST SET-UP AND OPERATION MODES	9
4.1	PRINCIPLE OF CONFIGURATION SELECTION.....	9
4.2	TEST OPERATION AND TEST SOFTWARE	9
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	9
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE.....	9
5.	TEST RESULTS	10
5.1	CONDUCTED TESTING AT ANTENNA PORT.....	10
5.1.1	<i>Antenna Requirement.....</i>	<i>10</i>
5.1.2	<i>6dB & 99% Bandwidth.....</i>	<i>12</i>
5.1.3	<i>Peak Output Power</i>	<i>19</i>
5.1.4	<i>Power Spectral Density</i>	<i>20</i>
5.1.5	<i>Conducted Band Edge and out-of Band Emissions</i>	<i>24</i>
5.2	EMISSION IN THE FREQUENCY RANGE UP TO 30MHZ	35
5.2.1	<i>Conducted Emission.....</i>	<i>35</i>
5.3	EMISSION IN THE FREQUENCY RANGE ABOVE 30MHZ.....	37
5.3.1	<i>Radiated Band-Edge</i>	<i>37</i>
5.3.2	<i>Radiated Spurious Emission.....</i>	<i>39</i>
6.	LIST OF TABLES	49
7.	LIST OF FIGURES	49

1. General Remarks

1.1 Complementary Materials

Null.

2. Test Sites

2.1 Test Facilities

TÜV Rheinland (Shanghai) Co., Ltd.

Shanghai TUV Rheinland Building No. 177, 178 Lane 777, West Guangzhong Rd, Jing'an District, Shanghai, China

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

The Federal Communications Commission has reviewed the technical characteristics of the radiated and conducted emission facility, and has found these test facilities to be in compliance with the requirements of section 2.948 of the FCC rules. The description of the test facility is listed under FCC registration number 958801.

The Innovation, Science and Economic Development Canada has reviewed the technical characteristics of the radiated and conducted emission facility, and has found these test facilities to be in compliance. The description of the test facility is listed under chambers filing number 2932F.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Equip.	Description	Model	Manufacturer	Due Date
G1811378	3m modified semi-anechoic chamber	SAC3	Frankonia	10.06.2024
9042162	EMI test receiver	ESR7	Rohde&Schwarz	02.03.2023
G1811425	Bilog antenna	CBL 6112D	Teseq	10.03.2023
G1811417	Log periodic antenna	HL050	Rohde&Schwarz	10.03.2023
G1822695	Spectrum analyser	FSP30	Rohde&Schwarz	16.08.2024
G1825371	Preamplifier	EMC051845SE	Taiwan EMCI	14.05.2023
G1825372	Preamplifier	EMC184045SE	Taiwan EMCI	14.05.2023
G1831065	Broadband horn antenna	BBHA 9170	Schwarzbeck	10.07.2023
G1822702	Spectrum analyser	FSV40	Rohde&Schwarz	04.11.2023
EMC-C-304	OSP	OSP-B157W8	Rohde & Schwarz	14.10.2023

2.3 Traceability

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

2.4 Calibration

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

2.5 Measurement Uncertainty

Table 2: Measurement Uncertainty

Measurement Type	Frequency	Uncertainty
Antenna Port Conducted Emission	< 1GHz	±0.39dB
	> 1GHz	±0.68dB
Conducted Emission	150kHz - 30MHz	±3.39dB
Radiated Emission	9kHz – 30MHz	±2.93dB
	30MHz - 1GHz	±5.34dB
	> 1GHz	±5.40dB

3. General Product Information

3.1 Product Function and Intended Use

The EUT (Equipment Under Test) is a Treadmill which supports Bluetooth Low Energy and Bluetooth Classic.

The aim of this report is to evaluate the RF characteristic of the Bluetooth Low Energy of this EUT.

For details refer to the User Manual and Circuit Diagram.

3.2 Ratings and System Details

Table 3: Technical Specification of EUT

General Description of EUT	
Product Name:	Treadmill
Model No.:	W900 110V BR
Test Voltage:	DC 3.3V for RF Conducted and Radiated Test AC 120V/60Hz for Conducted Emission Test
Technical Specification of Bluetooth Classic(Wireless module: EW-BLED-26)	
Frequency Range:	2402 to 2480MHz
Modulation Type:	GFSK, $\pi/4$ DQPSK
Data Rate:	1Mbps(GFSK), 2Mbps($\pi/4$ DQPSK)
Antenna Type:	PCB Antenna
Antenna Gain:	-6.5dBi (Provided by the Client)
Technical Specification of Bluetooth Low Energy(Wireless module: EW-BLED-22)	
Frequency Range:	2402 to 2480MHz
Modulation Type:	GFSK
Data Rate:	1Mbps
Antenna Type:	PCB Antenna
Antenna Gain:	-6.5dBi (Provided by the Client)

3.3 Independent Operation Modes

Table 4: Independent Operation Modes

Test Mode	Operating Mode	Channel Number	Channel Frequency [MHz]
TM1	1Mb/s	00	2402
TM2	1Mb/s	19	2440
TM3	1Mb/s	39	2480
TM4	Normal Operating Mode		

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

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

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

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

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.10: 2013.

Table 5: Power parameter value

Channel Frequency [MHz]	Power Parameter Value
2402	15
2440	15
2480	15

4.3 Special Accessories and Auxiliary Equipment

Table 6: Auxiliary Equipment

Product Name	Model Name	Manufactory
Laptop	TP00001A	Lenovo

4.4 Countermeasures to achieve EMC Compliance

Null.

5. Test Results

5.1 Conducted Testing at Antenna Port

5.1.1 Antenna Requirement

RESULT:**Pass**

According to the manufacturer declared, the EUT for Bluetooth Classic has one PCB antenna, the EUT for Bluetooth Low Energy has one PCB antenna, the directional gain of antenna is -6.5 dBi and the antenna is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Table 7: Antenna Requirement

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

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

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

Prüfbericht - Nr.: CN22Y9WY 001
Test Report No.**Seite 11 von 49**
Page 11 of 49**RSS-Gen 6.8 – Antenna Requirement**

Requirement: When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer.

Results:

a) Antenna Type:	PCB Antenna
b) Manufacture:	N/A
c) Model No.:	N/A
d) Gain with reference to an isotropic radiator:	-6.5dBi

Verdict: PASS

5.1.2 6dB & 99% Bandwidth

RESULT:**Pass**

Date of testing : 2022-12-05
Ambient temperature : 22.4°C
Relative humidity : 47.9%
Atmospheric pressure : 101kPa
Test requirement : FCC Part 15.247(a)(1)
RSS-247 Issue 2, February 2017, Clause 5.1(a)
Test procedure : ANSI C63.10: 2013
Test voltage : DC 3.3V
Test modes applied : TM1 to TM3

Table 8: 6dB & 99% Bandwidth

Test Mode	CH.	Freq. [MHz]	6dB Bandwidth [kHz]	6dB Bandwidth limit [kHz]	99% Bandwidth [kHz]
TM1	00	2402	673.268	≥500	925.000
TM2	19	2440	673.268	≥500	930.000
TM3	39	2480	673.268	≥500	940.000

TM1, 2402MHz
Minimum Emission Bandwidth 6 dB (2402 MHz; 8.000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v05r02 and ANSI C63.10-2013 11.8.1

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1.
 Expanded Uncertainty (K=2) < 2%

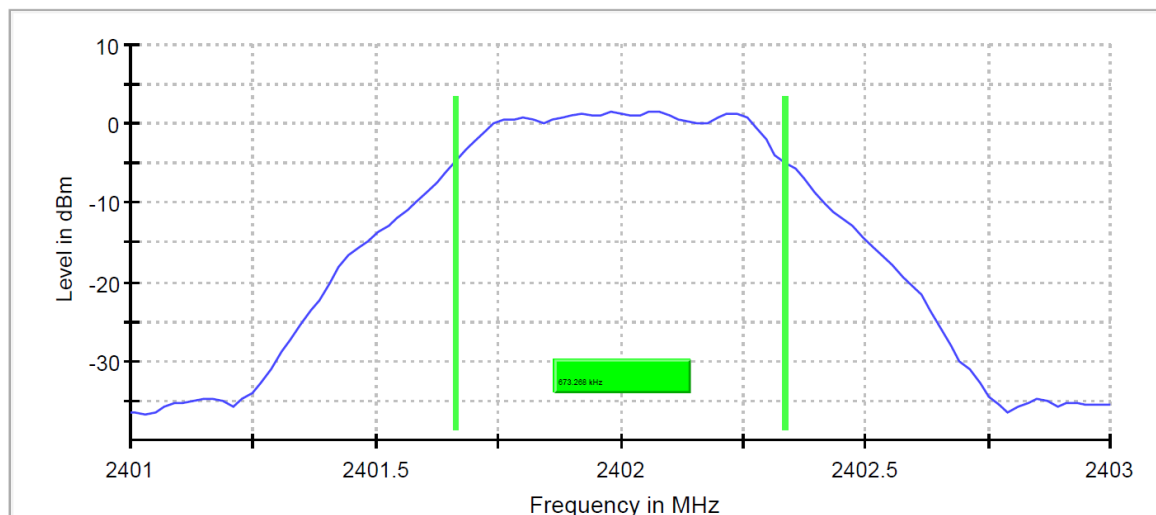
6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	0.673268	0.500000	---	2401.663366	2402.336634

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2402.000000	1.5	PASS

6 dB Bandwidth


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40300 GHz	2.40300 GHz
Span	2.000 MHz	2.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 40
SweepTime	18.938 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	8 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.09 dB	0.50 dB

TM2, 2440MHz
Minimum Emission Bandwidth 6 dB (2440 MHz; 8.000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v05r02 and ANSI C63.10-2013 11.8.1

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1.
Expanded Uncertainty (K=2) < 2%

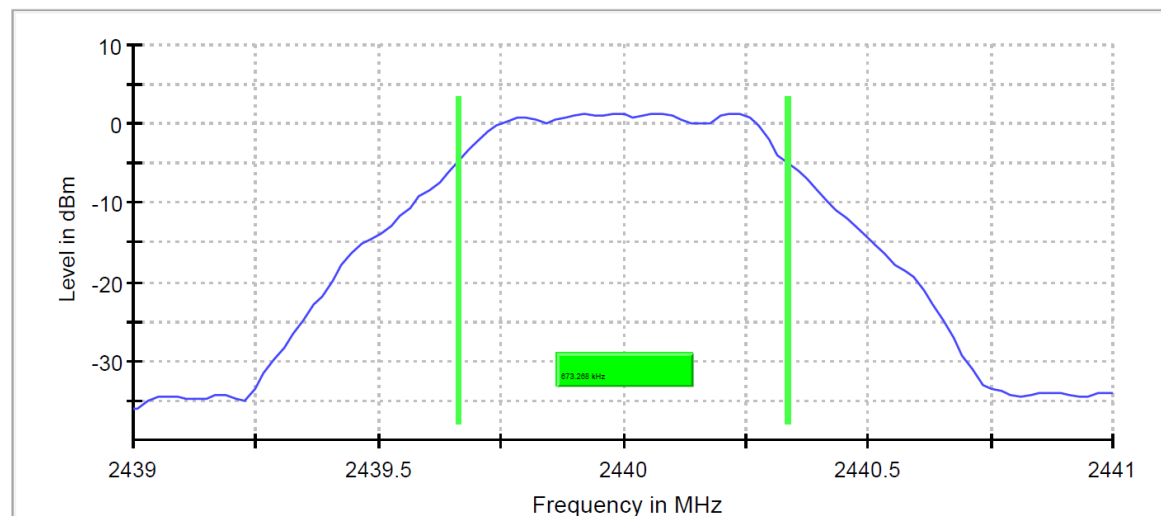
6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2440.000000	0.673268	0.500000	---	2439.663366	2440.336634

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2440.000000	1.4	PASS

6 dB Bandwidth


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.43900 GHz	2.43900 GHz
Stop Frequency	2.44100 GHz	2.44100 GHz
Span	2.000 MHz	2.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 40
SweepTime	18.938 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	8 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.05 dB	0.50 dB

TM3, 2480MHz
Minimum Emission Bandwidth 6 dB (2480 MHz; 8.000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v05r02 and ANSI C63.10-2013 11.8.1

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1.
Expanded Uncertainty (K=2) < 2%

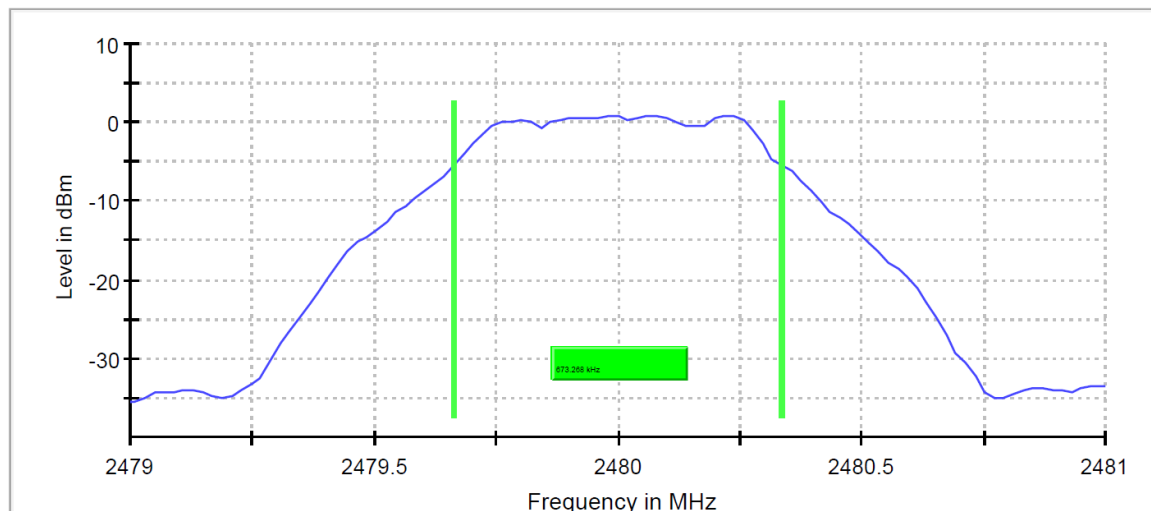
6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	0.673268	0.500000	---	2479.663366	2480.336634

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2480.000000	0.9	PASS

6 dB Bandwidth


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47900 GHz	2.47900 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	2.000 MHz	2.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 40
SweepTime	18.938 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	9 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.04 dB	0.50 dB

TM1, 2402MHz
Occupied Channel Bandwidth 99% (2402 MHz; 8.000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v05r02 and ANSI C63.10-2013 11.8.1

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1.
 Expanded Uncertainty (K=2) < 2%

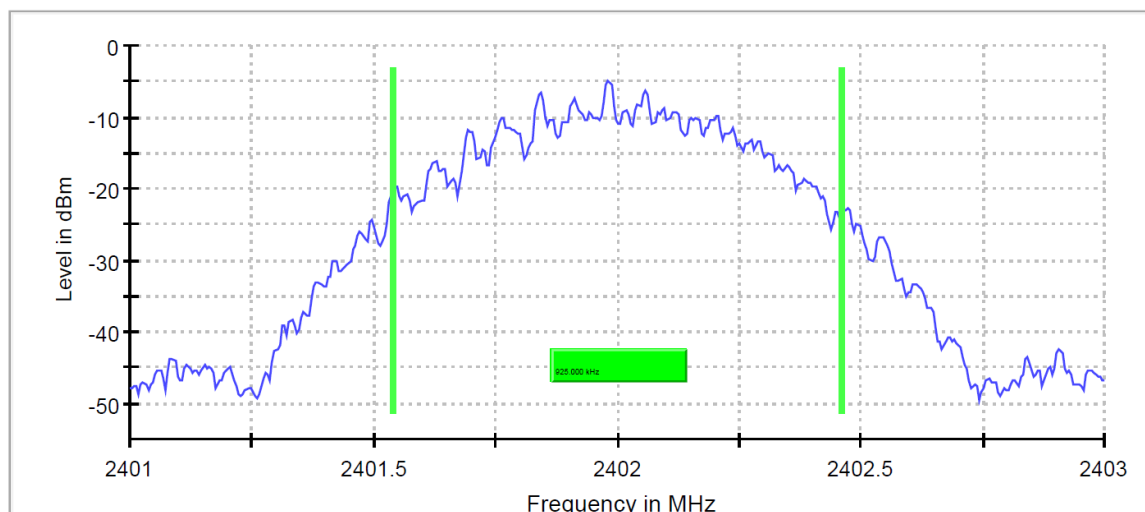
99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	0.925000	---	---	2401.537500	2402.462500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2402.000000	PASS

99 % Bandwidth


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40300 GHz	2.40300 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	5 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.08 dB	0.30 dB

TM2, 2440MHz
Occupied Channel Bandwidth 99% (2440 MHz; 8.000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v05r02 and ANSI C63.10-2013 11.8.1

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1.
 Expanded Uncertainty (K=2) < 2%

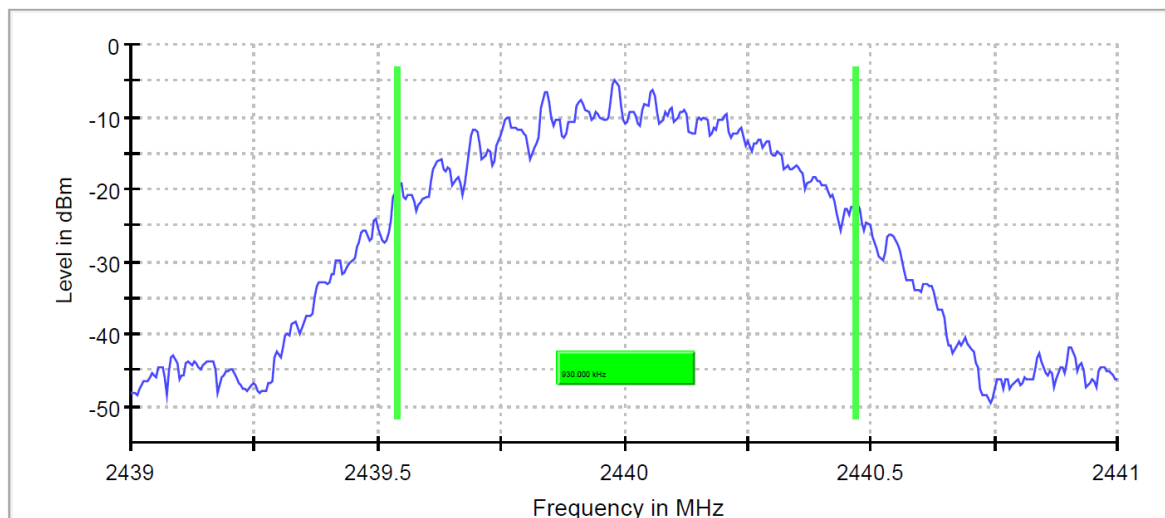
99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2440.000000	0.930000	---	---	2439.537500	2440.467500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2440.000000	PASS

99 % Bandwidth


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.43900 GHz	2.43900 GHz
Stop Frequency	2.44100 GHz	2.44100 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	5 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.08 dB	0.30 dB

TM3, 2480MHz
Occupied Channel Bandwidth 99% (2480 MHz; 8.000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v05r02 and ANSI C63.10-2013 11.8.1

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1.
 Expanded Uncertainty (K=2) < 2%

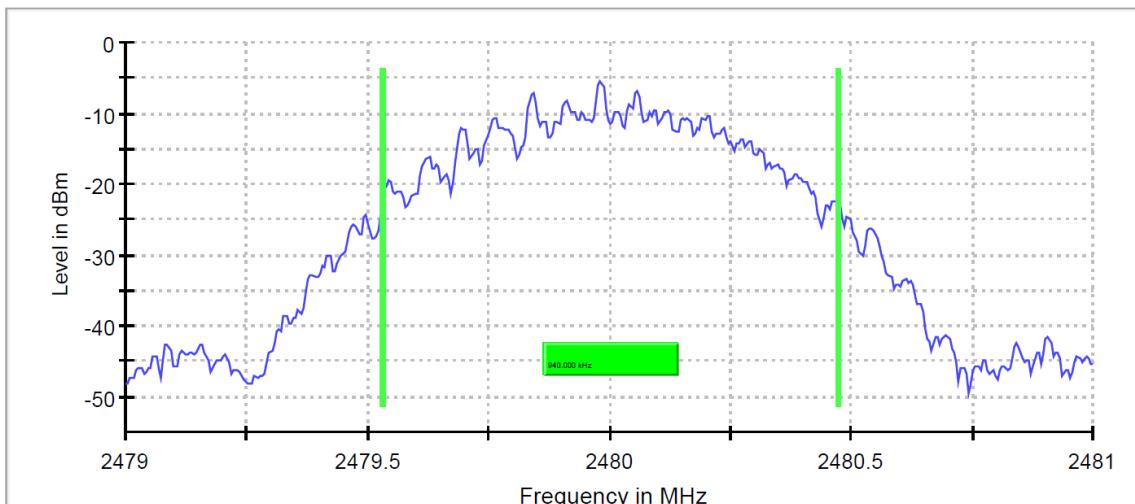
99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	0.940000	---	---	2479.532500	2480.472500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2480.000000	PASS

99 % Bandwidth


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47900 GHz	2.47900 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	4 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.13 dB	0.30 dB

5.1.3 Peak Output Power

RESULT:**Pass**

Date of testing : 2022-12-05
Ambient temperature : 22.4°C
Relative humidity : 47.9%
Atmospheric pressure : 101kPa
Test requirement : FCC Part 15.247(b)(3)
RSS-247 Issue 2, February 2017, Clause 5.4(d)
Test procedure : ANSI C63.10: 2013
Test voltage : DC 3.3V
Test modes applied : TM1 to TM3

Table 9: Peak Output Power

Mode	Antenna Gain [dBi]	CH.	Freq. [MHz]	Maximum Peak Conducted Output Power [dBm]	Peak Conducted Output Power Limit [dBm]	Maximum EIRP [dBm]	EIRP Limit [dBm]
TM1	-6.5	00	2402	2.3	30	-4.2	36
TM2		19	2440	2.1	30	-4.4	36
TM3		39	2480	1.7	30	-4.8	36

Note:

EIRP=Peak Conducted Output Power + Antenna Gain

The cable loss=1dB was provided by the client, and was factored in the result Peak Conducted Output Power

Prüfbericht - Nr.: CN22Y9WY 001
Test Report No.**Seite 20 von 49**
Page 20 of 49

5.1.4 Power Spectral Density

RESULT:**Pass**

Date of testing	:	2022-12-05
Ambient temperature	:	22.4°C
Relative humidity	:	47.9%
Atmospheric pressure	:	101kPa
Test requirement	:	FCC Part 15.247(e) RSS-247 Issue 2, February 2017, Clause 5.2(b)
Test procedure	:	ANSI C63.10: 2013
Test voltage	:	DC 3.3V
Test modes applied	:	TM1 to TM3

TM1, 2402MHz
Peak Power Spectral Density (2402 MHz; 8.000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(a),(e), KDB 558074 D01 DTS Meas Guidance v05r02 F and ANSI C63.10-2013

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1.
 Expanded Uncertainty (K=2) < 1.3 dB

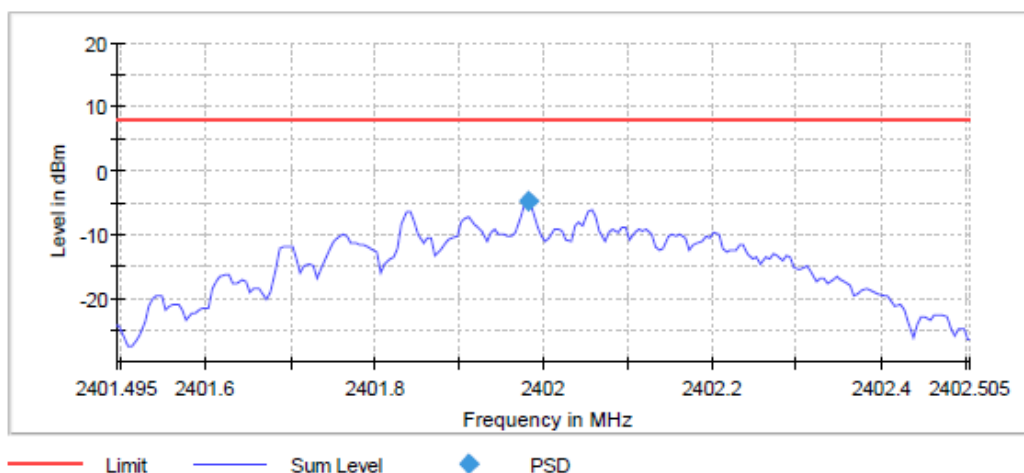
Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2402.000000	2401.982502	-4.780	8.0	PASS

Ports

Port	State
1	used

Peak Power Spectral Density


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40150 GHz	2.40150 GHz
Stop Frequency	2.40250 GHz	2.40250 GHz
Span	1.010 MHz	1.010 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	202	~ 202
Sweeptime	1.010 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / max. 150	max. 150
Stable	2 / 2	2
Max Stable Difference	0.05 dB	0.50 dB

TM2, 2440MHz
Peak Power Spectral Density (2440 MHz; 8.000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(a),(e), KDB 558074 D01 DTS Meas Guidance v05r02 F and ANSI C63.10-2013

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1.
 Expanded Uncertainty (K=2) < 1.3 dB

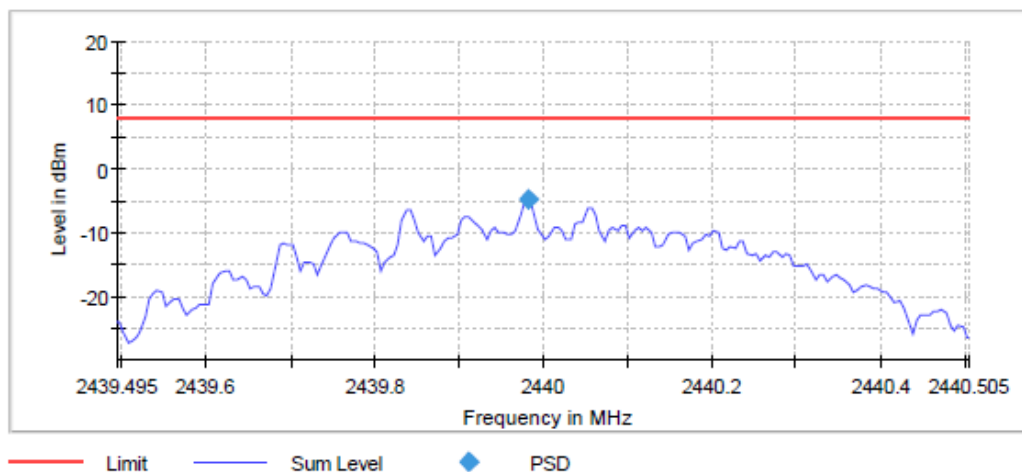
Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2440.000000	2439.982502	-4.795	8.0	PASS

Ports

Port	State
1	used

Peak Power Spectral Density


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.43950 GHz	2.43950 GHz
Stop Frequency	2.44050 GHz	2.44050 GHz
Span	1.010 MHz	1.010 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	202	~ 202
SweepTime	1.010 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	3 / max. 150	max. 150
Stable	2 / 2	2
Max Stable Difference	0.10 dB	0.50 dB

TM3, 2480MHz
Peak Power Spectral Density (2480 MHz; 8.000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(a),(e), KDB 558074 D01 DTS Meas Guidance v05r02 F and ANSI C63.10-2013

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1.
 Expanded Uncertainty (K=2) < 1.3 dB

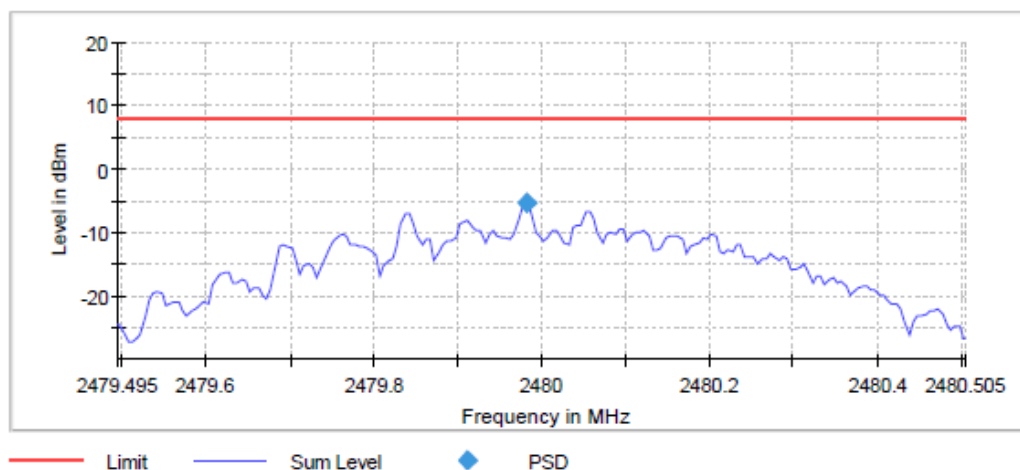
Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2480.000000	2479.982502	-5.352	8.0	PASS

Ports

Port	State
1	used

Peak Power Spectral Density


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47950 GHz	2.47950 GHz
Stop Frequency	2.48050 GHz	2.48050 GHz
Span	1.010 MHz	1.010 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	202	~ 202
SweepTime	1.010 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / max. 150	max. 150
Stable	2 / 2	2
Max Stable Difference	0.11 dB	0.50 dB

Prüfbericht - Nr.: CN22Y9WY 001
Test Report No.**Seite 24 von 49**
Page 24 of 49

5.1.5 Conducted Band Edge and out-of Band Emissions

RESULT:**Pass**

Date of testing	:	2022-12-05
Ambient temperature	:	22.4°C
Relative humidity	:	47.9%
Atmospheric pressure	:	101kPa
Test requirement	:	FCC Part 15.247(d) RSS-247 Issue 2, February 2017, Clause 5.5
Test procedure	:	ANSI C63.10: 2013
Test voltage	:	DC 3.3V
Test modes applied	:	TM1 to TM3

TM1, 2402MHz
Band Edge low (2402 MHz; 8.000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v05r02 8.7 and ANSI C63.10-2013

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1.
 Expanded Uncertainty (K=2) < 0.8 dB

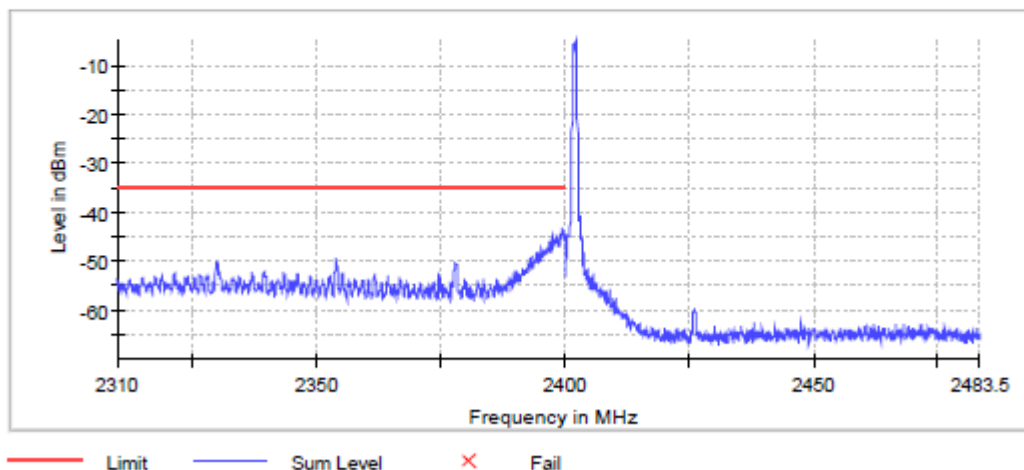
Result

DUT Frequency (MHz)	Result
2402.000000	PASS

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.475000	-43.3	8.2	-35.1	PASS
2399.425000	-44.0	8.9	-35.1	PASS
2399.575000	-44.0	8.9	-35.1	PASS
2399.275000	-44.2	9.1	-35.1	PASS
2399.625000	-44.2	9.1	-35.1	PASS
2399.225000	-44.3	9.2	-35.1	PASS
2399.525000	-44.4	9.2	-35.1	PASS
2399.075000	-44.4	9.3	-35.1	PASS
2399.725000	-44.5	9.4	-35.1	PASS
2399.125000	-44.5	9.4	-35.1	PASS
2399.975000	-44.6	9.4	-35.1	PASS
2399.325000	-44.6	9.5	-35.1	PASS
2399.675000	-44.7	9.6	-35.1	PASS
2399.375000	-44.8	9.7	-35.1	PASS
2399.925000	-44.8	9.7	-35.1	PASS

Band Edge



Measurement 1

Setting	Instrument Value	Target Value
Start Frequency	2.31000 GHz	2.31000 GHz
Stop Frequency	2.40000 GHz	2.40000 GHz
Span	90.000 MHz	90.000 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1800	~ 1800
SweepTime	1.800 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	19 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Measurement 2

Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.48350 GHz	2.48350 GHz
Span	83.500 MHz	83.500 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670
SweepTime	1.670 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	9 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.12 dB	0.50 dB

Prüfbericht - Nr.: CN22Y9WY 001
Test Report No.
Seite 27 von 49
Page 27 of 49
TM3, 2480MHz
Band Edge high (2480 MHz; 8.000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v05r02 8.7 and ANSI C63.10-2013

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1.
 Expanded Uncertainty (K=2) < 0.8 dB

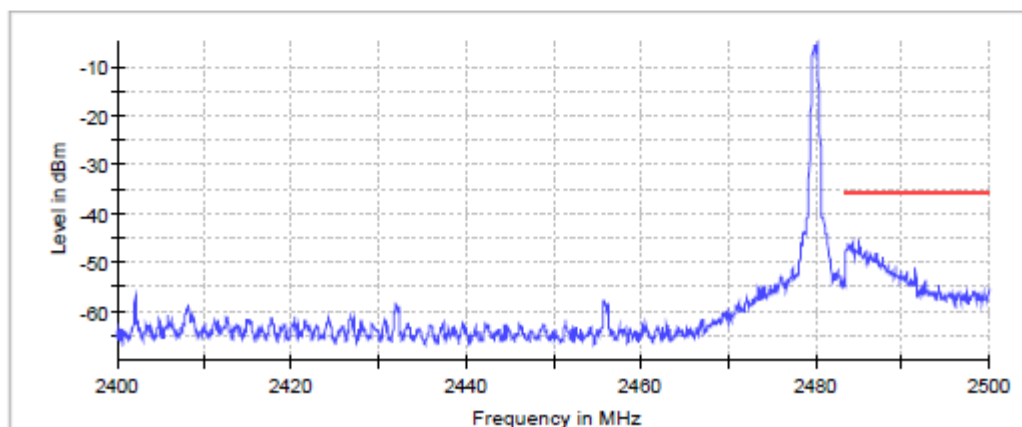
Result

DUT Frequency (MHz)	Result
2480.000000	PASS

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2485.025000	-45.2	9.6	-35.6	PASS
2484.975000	-45.6	10.0	-35.6	PASS
2483.725000	-46.1	10.4	-35.6	PASS
2484.275000	-46.2	10.6	-35.6	PASS
2484.075000	-46.3	10.7	-35.6	PASS
2485.075000	-46.4	10.8	-35.6	PASS
2483.675000	-46.7	11.1	-35.6	PASS
2485.175000	-46.8	11.2	-35.6	PASS
2483.775000	-46.9	11.3	-35.6	PASS
2484.325000	-46.9	11.3	-35.6	PASS
2484.125000	-46.9	11.3	-35.6	PASS
2484.025000	-46.9	11.3	-35.6	PASS
2483.875000	-47.0	11.4	-35.6	PASS
2484.225000	-47.1	11.5	-35.6	PASS
2484.425000	-47.1	11.5	-35.6	PASS

Band Edge



— Limit — Sum Level × Fail

Measurement 1

Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.48350 GHz	2.48350 GHz
Span	83.500 MHz	83.500 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670
SweepTime	1.670 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	8 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.02 dB	0.50 dB

Measurement 2

Setting	Instrument Value	Target Value
Start Frequency	2.48350 GHz	2.48350 GHz
Stop Frequency	2.50000 GHz	2.50000 GHz
Span	16.500 MHz	16.500 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	330	~ 330
SweepTime	37.969 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	5 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

TM1, 2402MHz
Tx Spurious Emission (2402 MHz; 8.000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v05r02 8.5 and ANSI C63.10-2013 11.11.2 & 11.11.3

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1.
 Expanded Uncertainty (K=2) < 1.8 dB

Result

DUT Frequency (MHz)	Result
2402.000000	PASS

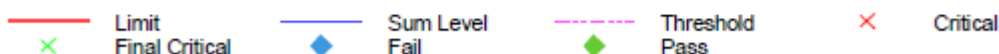
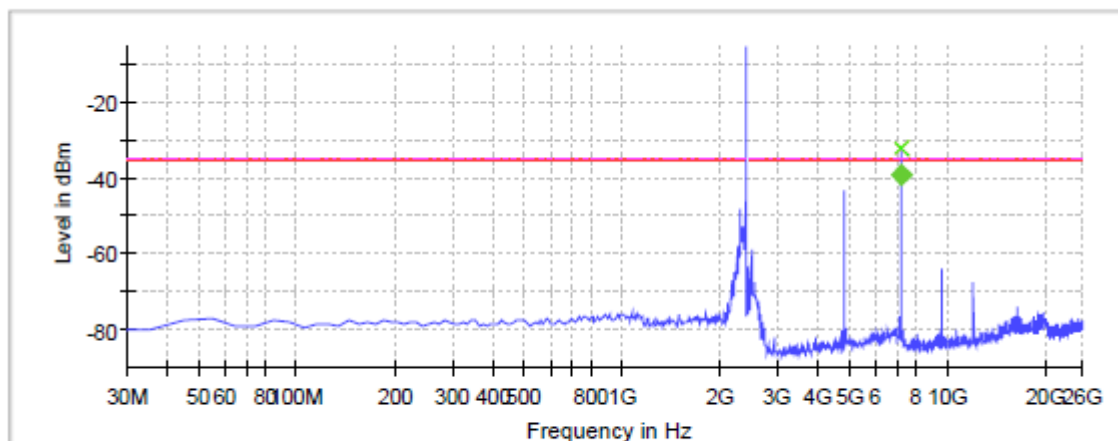
Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
7206.587104	-35.5	-39.3	-35.3	4.0	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
7205.789099	-32.1	-3.2	-35.3
2395.021008	-43.1	7.8	-35.3
4807.166065	-43.3	8.0	-35.3
2305.399160	-48.4	13.1	-35.3
2325.315126	-52.6	17.3	-35.3
2375.105042	-52.9	17.6	-35.3
2355.189076	-53.2	17.9	-35.3
2335.273109	-56.0	20.6	-35.3
2385.063025	-56.5	21.2	-35.3
2345.231092	-56.7	21.4	-35.3
2255.609244	-57.9	22.5	-35.3
2315.357143	-58.0	22.7	-35.3
2365.147059	-58.7	23.4	-35.3
2498.491394	-59.0	23.7	-35.3
2295.441176	-60.2	24.9	-35.3

Spurious



Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	238	~ 238
SweepTime	23.700 ms	AUTO
Reference Level	-20.000 dBm	-30.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	8 / max. 40	max. 40
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Final Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	401	~ 401
SweepTime	94.768 µs	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	Sample	Sample
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Average Linear	Average Linear
SweepType	FFT	AUTO
Preamplifier	off	off

Prüfbericht - Nr.: CN22Y9WY 001
Test Report No.
Seite 31 von 49
Page 31 of 49
TM2, 2440MHz
Tx Spurious Emission (2440 MHz; 8.000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v05r02 8.5 and ANSI C63.10-2013 11.11.2 & 11.11.3

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1.
 Expanded Uncertainty (K=2) < 1.8 dB

Result

DUT Frequency (MHz)	Result
2440.000000	PASS

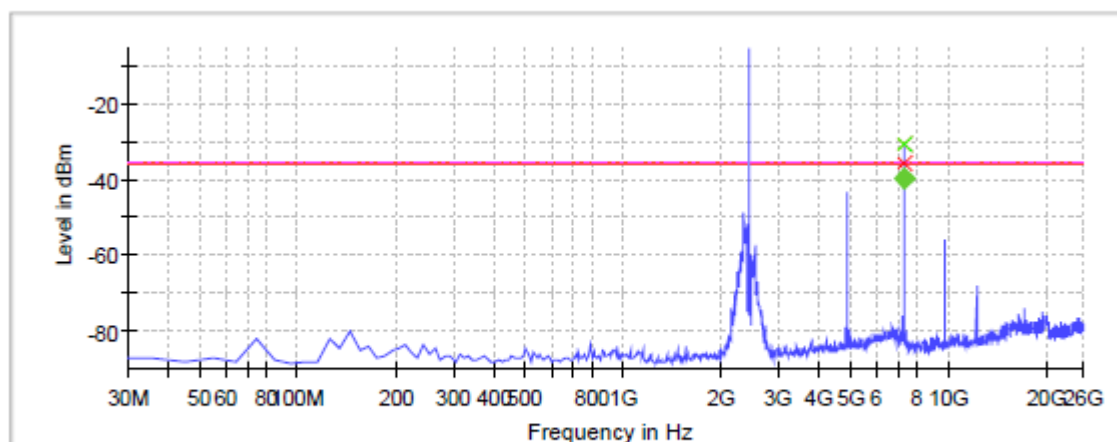
Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
7320.563893	-33.0	-39.6	-35.7	3.8	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
7315.725988	-30.8	-5.0	-35.7
7325.720251	-35.5	-0.2	-35.7
4877.125903	-43.2	7.5	-35.7
2345.231092	-48.6	12.9	-35.7
2395.021008	-51.9	16.1	-35.7
2365.147059	-52.5	16.8	-35.7
9754.326073	-55.6	19.9	-35.7
2375.105042	-56.4	20.7	-35.7
9764.320336	-56.7	21.0	-35.7
2355.189076	-56.8	21.1	-35.7
2385.063025	-57.0	21.3	-35.7
2538.468445	-57.5	21.8	-35.7
2295.441176	-58.9	23.2	-35.7
2488.497131	-59.7	23.9	-35.7
2315.357143	-60.2	24.5	-35.7

Spurious



x Limit Final Critical
 ◆ Sum Level Fail
 ◆ Threshold Pass
 x Critical

Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	238	~ 238
Sweeptime	23.700 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	11 / max. 40	max. 40
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Final Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	401	~ 401
Sweeptime	94.768 µs	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	Sample	Sample
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Average Linear	Average Linear
SweepType	FFT	AUTO
Preamp	off	off

TM3, 2480MHz
Tx Spurious Emission (2480 MHz; 8.000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v05r02 8.5 and ANSI C63.10-2013 11.11.2 & 11.11.3

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1.
 Expanded Uncertainty (K=2) < 1.8 dB

Result

DUT Frequency (MHz)	Result
2480.000000	PASS

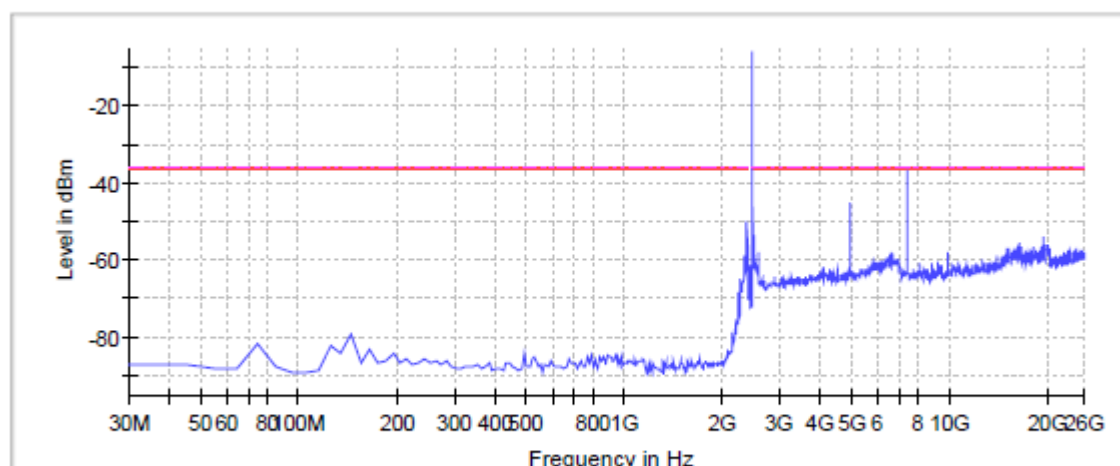
Final measurements

Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
7435.657140	-36.9	0.7	-36.2
7445.651402	-39.1	2.9	-36.2
4957.080004	-45.0	8.9	-36.2
2488.497131	-45.6	9.4	-36.2
2385.063025	-50.0	13.8	-36.2
2508.485657	-53.4	17.2	-36.2
19448.760837	-53.9	17.7	-36.2
16370.527943	-55.6	19.4	-36.2
19468.749363	-55.6	19.4	-36.2
19478.743625	-55.7	19.5	-36.2
19408.783787	-55.8	19.6	-36.2
19348.818211	-55.8	19.6	-36.2
20058.410858	-55.9	19.7	-36.2
19718.605929	-56.0	19.8	-36.2
16380.522206	-56.1	20.0	-36.2

Spurious



— Limit — Sum Level - - - Threshold × Critical × Final Critical

Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	238	~ 238
Sweeptime	23.700 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	5 / max. 40	max. 40
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Final Measurement 1

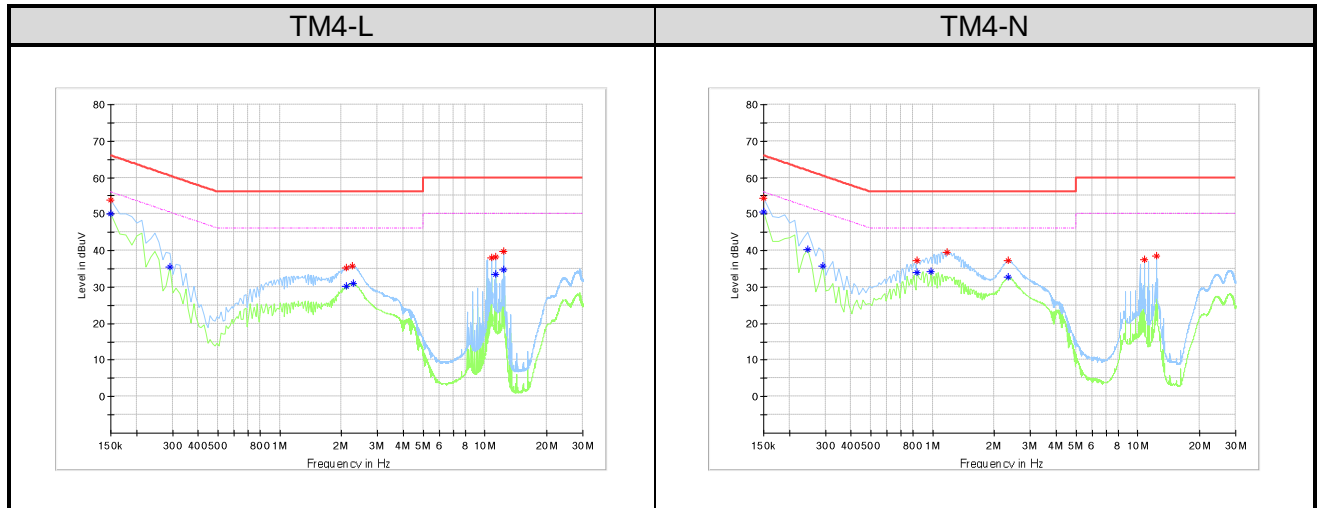
Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	401	~ 401
Sweeptime	94.768 µs	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	Sample	Sample
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Average Linear	Average Linear
SweepType	FFT	AUTO
Preamp	off	off

5.2 Emission in the Frequency Range up to 30MHz

5.2.1 Conducted Emission

RESULT:**Pass**

Date of testing	:	2022-12-07
Ambient temperature	:	24.5°C
Relative humidity	:	50.4%
Atmospheric pressure	:	101kPa
Test requirement	:	FCC Part 15.207 (a) RSS-Gen Issue 5, Amendment 2, February 2021, Clause 8.8
Test procedure	:	ANSI C63.10: 2013
Test voltage	:	AC 120V/60Hz
Test modes applied	:	TM4

Figure 1: Conducted Emission


Final Result

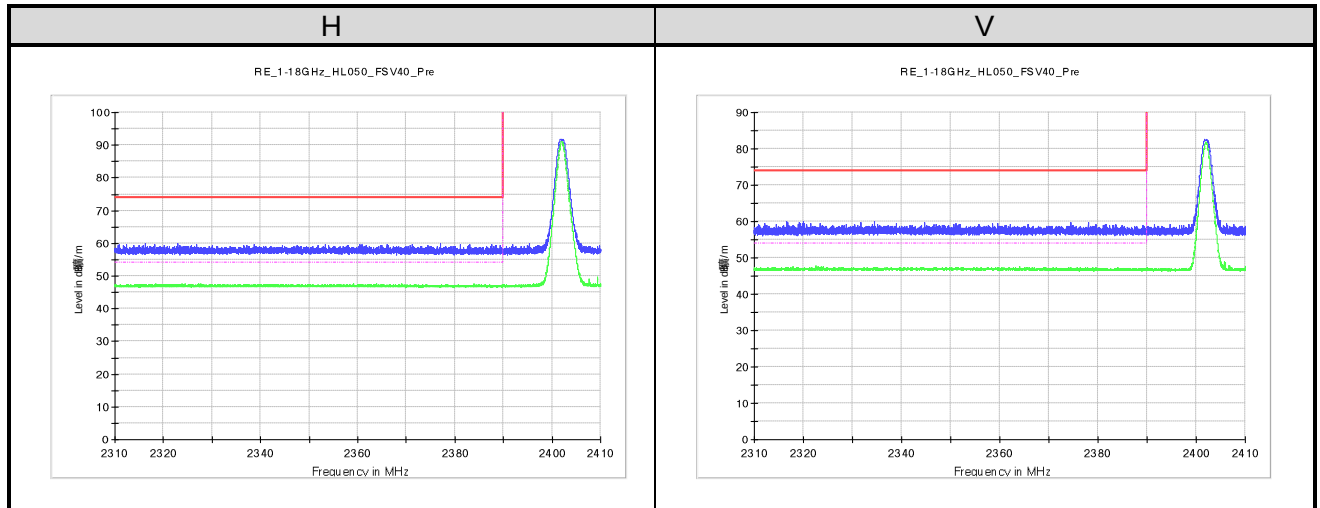
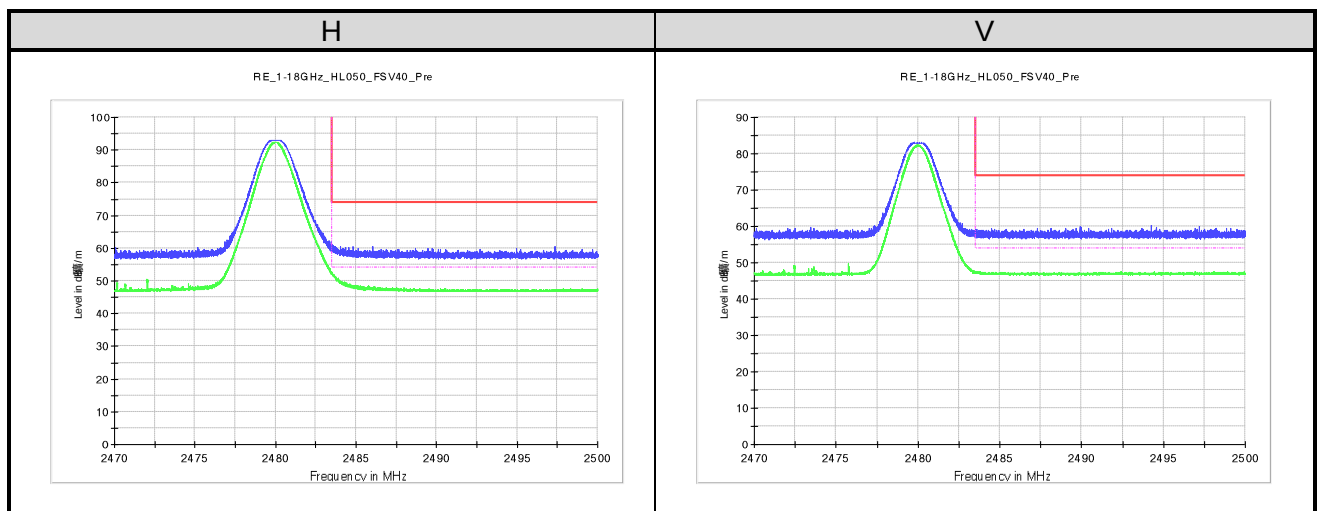
Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Comment
2.113125	35.30	---	56.00	20.70	L1	
2.248125	35.77	---	56.00	20.23	L1	
10.753125	38.13	---	60.00	21.87	L1	
11.270625	38.36	---	60.00	21.64	L1	
12.294375	39.77	---	60.00	20.23	L1	
0.150000	53.94	---	66.00	12.06	L1	
12.294375	---	34.78	50.00	15.22	L1	
11.270625	---	33.51	50.00	16.49	L1	
0.150000	---	50.19	56.00	5.81	L1	
0.290625	---	35.47	50.51	15.03	L1	
2.270625	---	30.97	46.00	15.03	L1	
2.113125	---	30.27	46.00	15.73	L1	
0.841875	37.24	---	56.00	27.13	N	
2.338125	37.25	---	56.00	26.88	N	
10.764375	37.48	---	60.00	25.56	N	
12.305625	38.58	---	60.00	24.22	N	
1.179375	39.60	---	56.00	21.43	N	
0.150000	54.26	---	66.00	8.15	N	
2.338125	---	32.64	46.00	15.41	N	
0.245625	---	40.35	51.90	18.91	N	
0.150000	---	50.49	56.00	7.90	N	
0.290625	---	35.80	50.51	18.92	N	
0.976875	---	34.35	46.00	19.27	N	
0.841875	---	33.90	46.00	16.71	N	

5.3 Emission in the Frequency Range above 30MHz

5.3.1 Radiated Band-Edge

RESULT:**Pass**

Date of testing	:	2022-11-21
Ambient temperature	:	20.9°C
Relative humidity	:	50.2%
Atmospheric pressure	:	101kPa
Test requirement	:	FCC Part 15.247(d) FCC Part 15.205(a) FCC Part 15.209(a) RSS-Gen Issue 5, Amendment 2, February 2021, Clause 8.9 RSS-Gen Issue 5, Amendment 2, February 2021, Clause 8.10 RSS-247 Issue 2, February 2017, Clause 5.5
Test procedure	:	ANSI C63.10: 2013
Test voltage	:	DC 3.3V
Test modes applied	:	TM1, TM3

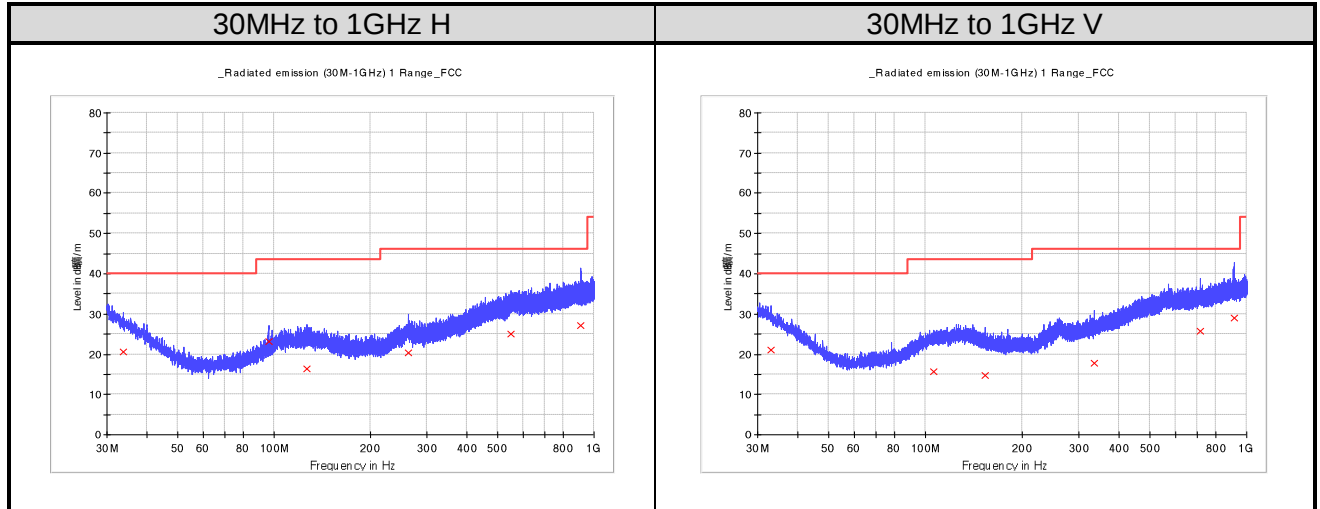
Figure 2: Radiated Band-Edge, TM1

Figure 3: Radiated Band-Edge, TM3


Prüfbericht - Nr.: CN22Y9WY 001
Test Report No.**Seite 39 von 49**
Page 39 of 49

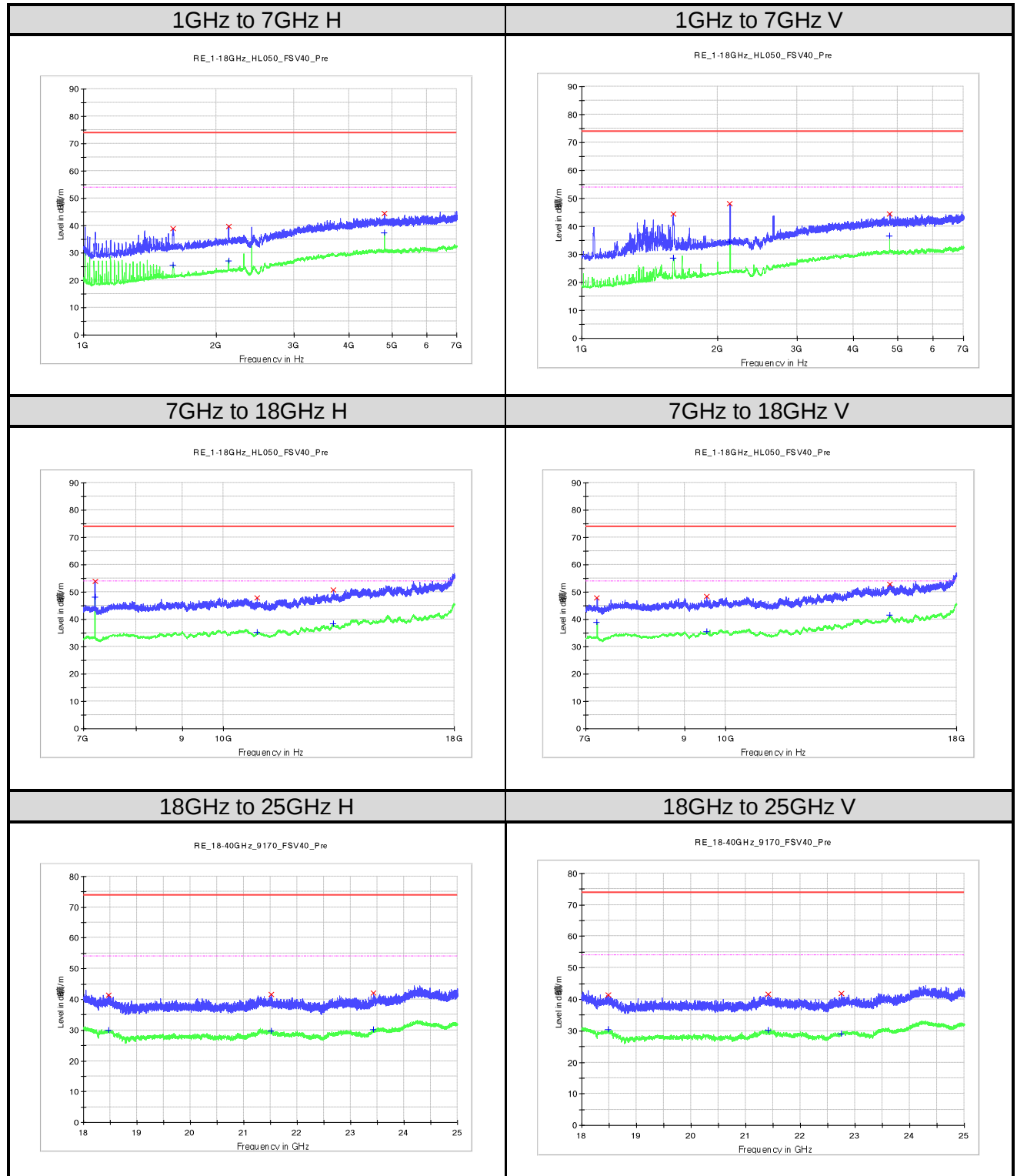
5.3.2 Radiated Spurious Emission

RESULT:**Pass**

Date of testing	:	2022-11-21
Ambient temperature	:	20.9°C
Relative humidity	:	50.2%
Atmospheric pressure	:	101kPa
Test requirement	:	FCC Part 15.247(d) FCC Part 15.209(a) RSS-Gen Issue 5, Amendment 2, February 2021, Clause 8.9 RSS-247 Issue 2, February 2017, Clause 5.5
Test procedure	:	ANSI C63.10: 2013
Test voltage	:	DC 3.3V
Test modes applied	:	TM1 to TM3

Figure 4: Radiated Spurious Emission, TM1, 30MHz to 1GHz

Limit and Margin

Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
33.815333	20.5	H	23.4	19.5	40.0
95.992333	23.2	H	16.8	20.4	43.5
126.159333	16.5	H	18.8	27.1	43.5
261.927000	20.4	H	20.7	25.7	46.0
550.502000	24.9	H	26.3	21.1	46.0
909.014000	27.0	H	28.0	19.0	46.0
33.104000	21.0	V	23.7	19.0	40.0
106.177333	15.6	V	18.3	27.9	43.5
153.448667	14.6	V	17.0	28.9	43.5
335.065000	17.9	V	20.6	28.1	46.0
717.051000	25.7	V	26.3	20.3	46.0
913.864000	28.9	V	28.1	17.1	46.0

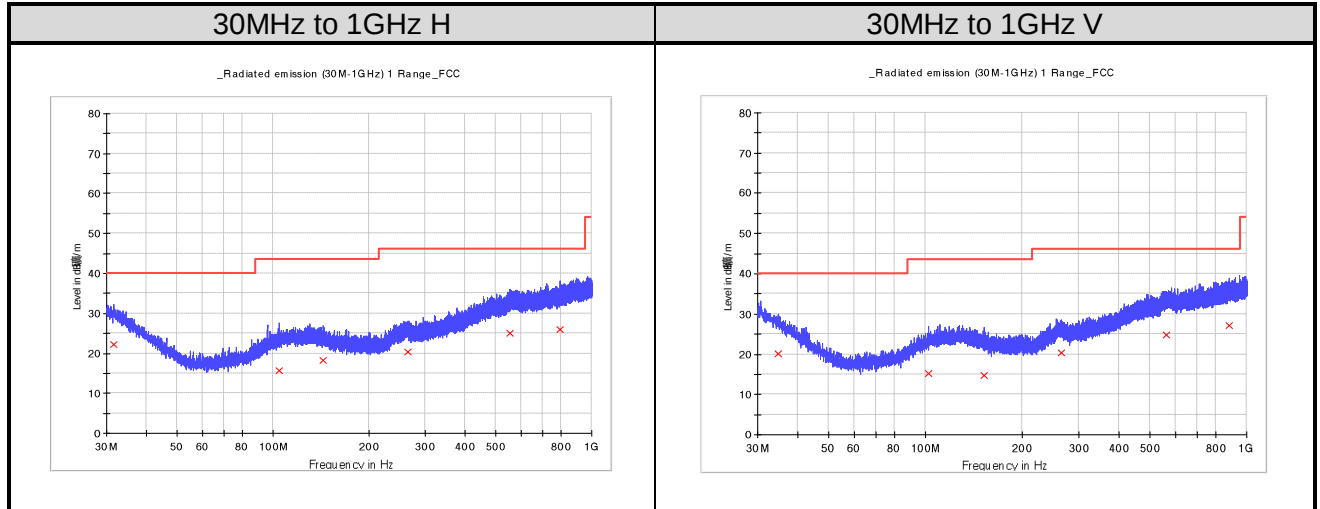
Figure 5: Radiated Spurious Emission, TM1, 1GHz to 25GHz


Limit and Margin
PK

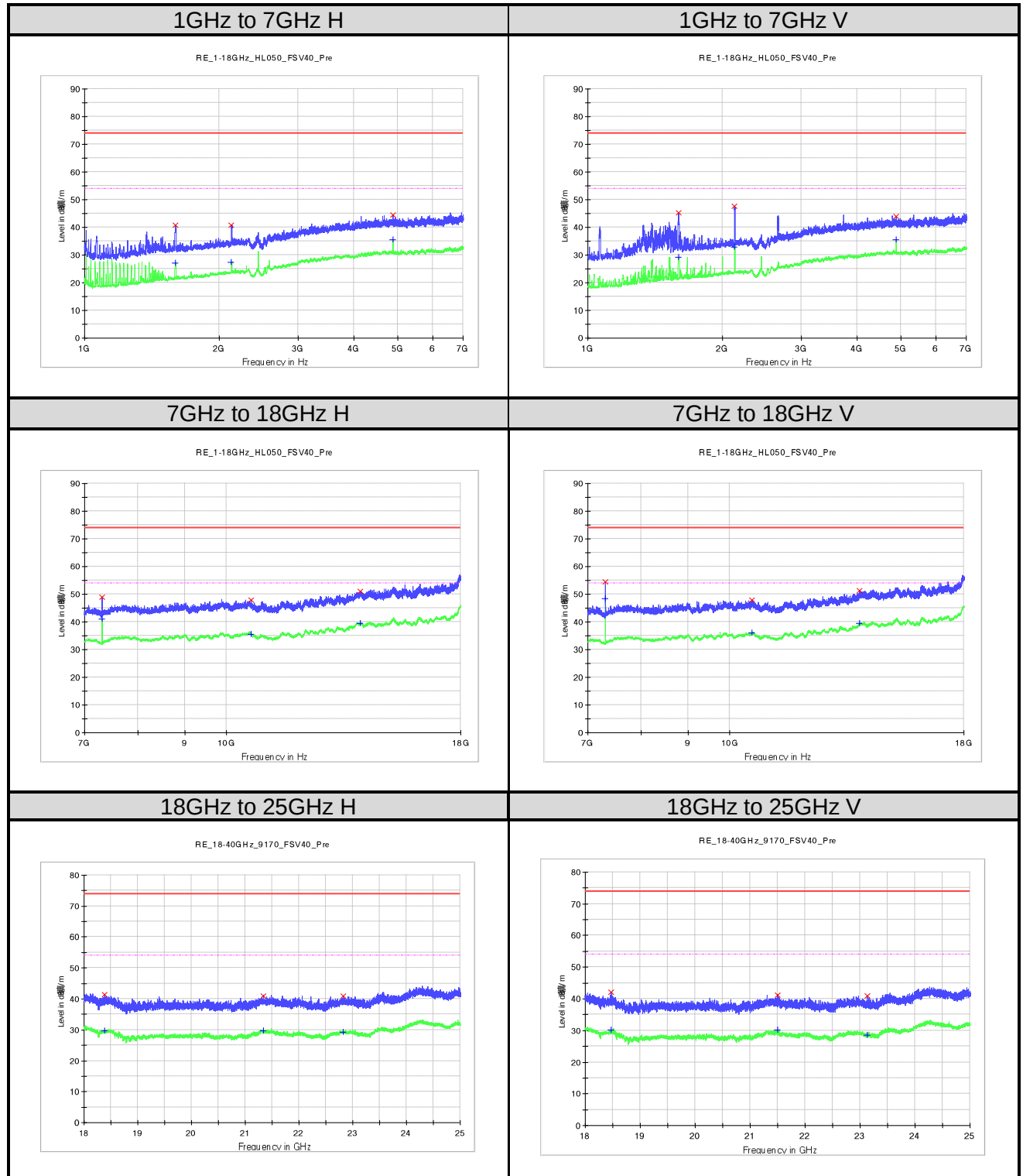
Frequency (MHz)	MaxPeak (dBμV/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBμV/m)
1597.000000	38.9	H	-18.3	35.1	74.0
2131.750000	39.8	H	-15.7	34.2	74.0
4804.750000	44.4	H	-6.5	29.6	74.0
7206.250000	53.8	H	-3.9	20.2	74.0
10895.375000	47.8	H	0.8	26.2	74.0
13238.375000	50.8	H	3.3	23.2	74.0
18476.875000	41.5	H	-9.2	32.5	74.0
21517.500000	41.7	H	-6.0	32.3	74.0
23431.125000	42.2	H	-4.4	31.8	74.0
1594.000000	44.4	V	-18.4	29.6	74.0
2123.500000	48.2	V	-15.8	25.8	74.0
4804.000000	44.6	V	-6.5	29.4	74.0
7204.875000	47.8	V	-3.9	26.2	74.0
9531.375000	48.5	V	-0.7	25.5	74.0
15195.000000	53.0	V	6.3	21.0	74.0
18483.875000	41.5	V	-9.2	32.5	74.0
21412.500000	41.7	V	-6.1	32.3	74.0
22755.625000	41.8	V	-6.1	32.2	74.0

AV

Frequency (MHz)	Average (dBμV/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBμV/m)
1597.000000	25.4	H	-18.3	28.6	54.0
2131.750000	27.2	H	-15.7	26.8	54.0
4804.750000	37.4	H	-6.5	16.6	54.0
7206.250000	48.1	H	-3.9	5.9	54.0
10895.375000	35.2	H	0.8	18.8	54.0
13238.375000	38.3	H	3.3	15.7	54.0
18476.875000	30.0	H	-9.2	24.0	54.0
21517.500000	29.7	H	-6.0	24.3	54.0
23431.125000	30.1	H	-4.4	23.9	54.0
1594.000000	28.8	V	-18.4	25.2	54.0
2123.500000	34.4	V	-15.8	19.6	54.0
4804.000000	36.7	V	-6.5	17.3	54.0
7204.875000	38.9	V	-3.9	15.1	54.0
9531.375000	35.5	V	-0.7	18.5	54.0
15195.000000	41.5	V	6.3	12.5	54.0
18483.875000	30.3	V	-9.2	23.7	54.0
21412.500000	30.2	V	-6.1	23.8	54.0
22755.625000	28.9	V	-6.1	25.1	54.0

Figure 6: Radiated Spurious Emission, TM2, 30MHz to 1GHz

Limit and Margin

Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
31.519667	22.1	H	24.7	17.9	40.0
104.787000	15.6	H	18.2	27.9	43.5
143.942667	18.3	H	17.8	25.2	43.5
264.093333	20.5	H	20.7	25.6	46.0
555.934000	25.0	H	26.5	21.0	46.0
797.076000	26.0	H	27.5	20.0	46.0
34.720667	20.0	V	22.9	20.0	40.0
101.974000	15.2	V	17.8	28.3	43.5
152.575667	14.7	V	17.0	28.8	43.5
265.128000	20.3	V	20.7	25.7	46.0
562.756333	24.8	V	26.2	21.2	46.0
883.567667	27.1	V	28.0	19.0	46.0

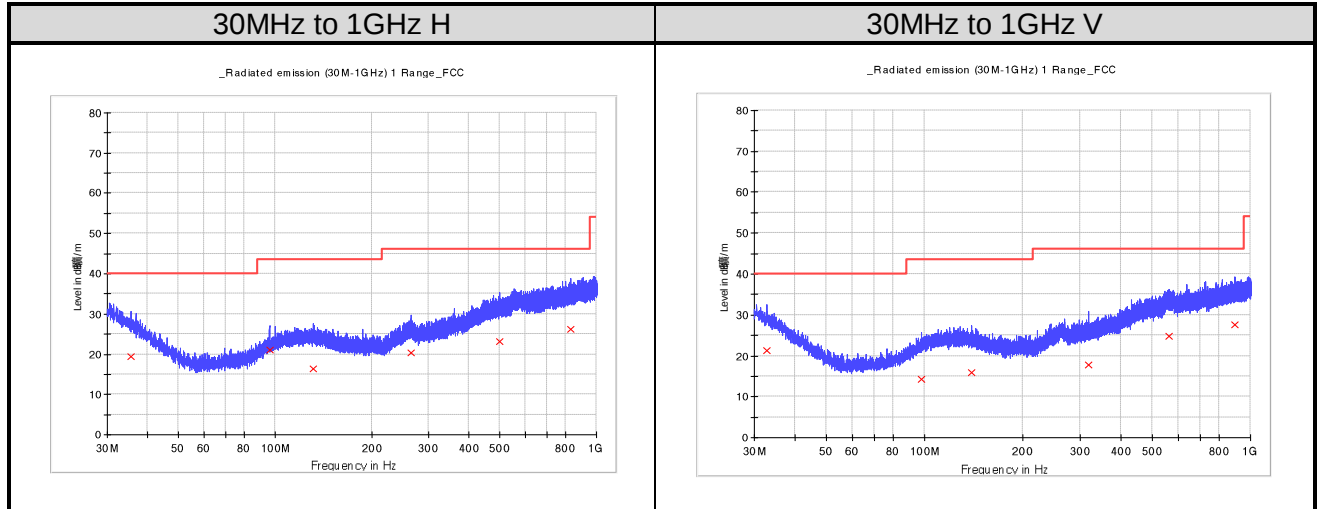
Figure 7: Radiated Spurious Emission, TM2, 1GHz to 25GHz


Limit and Margin
PK

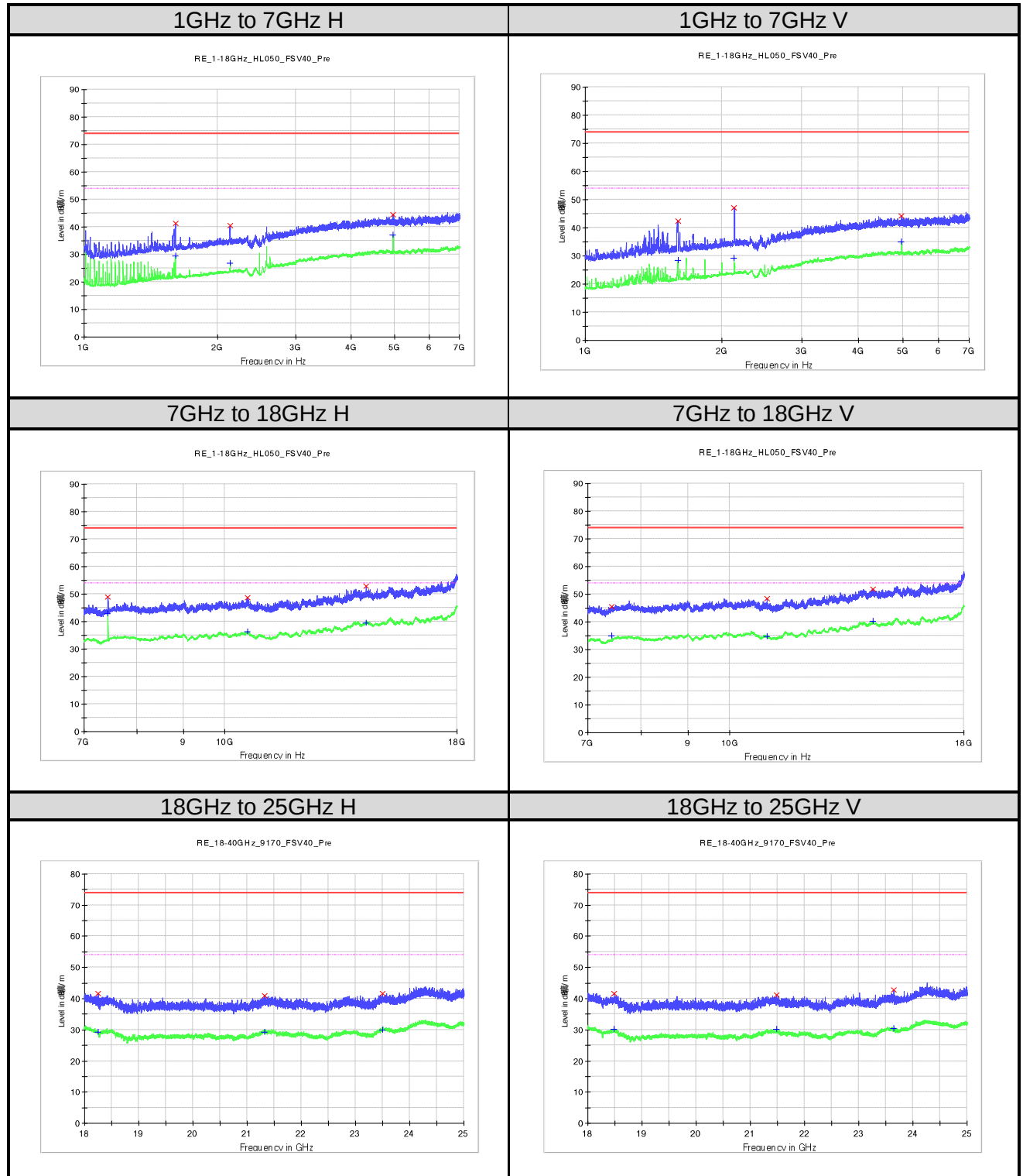
Frequency (MHz)	MaxPeak (dBμV/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBμV/m)
1596.250000	40.9	H	-18.3	33.1	74.0
2124.250000	40.9	H	-15.8	33.1	74.0
4880.500000	44.5	H	-6.5	29.5	74.0
7320.375000	49.0	H	-4.0	25.0	74.0
10643.750000	47.9	H	1.0	26.1	74.0
14001.500000	51.0	H	4.6	23.0	74.0
18387.625000	41.5	H	-9.1	32.5	74.0
21335.500000	41.0	H	-6.3	33.0	74.0
22825.625000	40.9	H	-5.9	33.1	74.0
1595.500000	45.3	V	-18.3	28.7	74.0
2128.000000	47.5	V	-15.7	26.5	74.0
4879.750000	44.0	V	-6.5	30.0	74.0
7320.375000	54.5	V	-4.0	19.5	74.0
10580.500000	48.0	V	1.0	26.0	74.0
13837.875000	51.4	V	3.9	22.6	74.0
18476.000000	42.1	V	-9.2	31.9	74.0
21501.750000	41.1	V	-6.0	32.9	74.0
23125.750000	41.0	V	-5.1	33.0	74.0

AV

Frequency (MHz)	Average (dBμV/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBμV/m)
1596.250000	27.2	H	-18.3	26.8	54.0
2124.250000	27.5	H	-15.8	26.5	54.0
4880.500000	35.5	H	-6.5	18.5	54.0
7320.375000	41.0	H	-4.0	13.0	54.0
10643.750000	35.5	H	1.0	18.5	54.0
14001.500000	39.6	H	4.6	14.4	54.0
18387.625000	29.6	H	-9.1	24.4	54.0
21335.500000	29.7	H	-6.3	24.3	54.0
22825.625000	29.3	H	-5.9	24.7	54.0
1595.500000	29.2	V	-18.3	24.8	54.0
2128.000000	32.9	V	-15.7	21.1	54.0
4879.750000	35.5	V	-6.5	18.5	54.0
7320.375000	48.3	V	-4.0	5.7	54.0
10580.500000	36.0	V	1.0	18.0	54.0
13837.875000	39.4	V	3.9	14.6	54.0
18476.000000	30.1	V	-9.2	23.9	54.0
21501.750000	30.1	V	-6.0	23.9	54.0
23125.750000	28.6	V	-5.1	25.4	54.0

Figure 8: Radiated Spurious Emission, TM3, 30MHz to 1GHz

Limit and Margin

Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
35.529000	19.4	H	22.5	20.6	40.0
95.960000	21.1	H	16.8	22.4	43.5
131.656000	16.4	H	18.6	27.1	43.5
265.322000	20.4	H	20.6	25.6	46.0
501.355333	23.2	H	25.0	22.8	46.0
833.936000	26.3	H	27.5	19.7	46.0
32.813000	21.3	V	23.9	18.7	40.0
97.673667	14.2	V	17.0	29.3	43.5
139.545333	15.8	V	18.1	27.7	43.5
319.286333	17.7	V	20.6	28.3	46.0
560.557667	24.9	V	26.3	21.2	46.0
895.466333	27.5	V	28.4	18.5	46.0

Figure 9: Radiated Spurious Emission, TM3, 1GHz to 25GHz


Limit and Margin
PK

Frequency (MHz)	MaxPeak (dBμV/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBμV/m)
1606.750000	41.2	H	-18.3	32.8	74.0
2131.000000	40.4	H	-15.7	33.6	74.0
4960.000000	44.5	H	-6.6	29.5	74.0
7440.000000	49.0	H	-3.1	25.0	74.0
10587.375000	48.6	H	1.1	25.4	74.0
14287.500000	52.8	H	4.8	21.2	74.0
18246.750000	41.6	H	-9.0	32.4	74.0
21324.125000	40.9	H	-6.3	33.1	74.0
23503.750000	41.6	H	-4.2	32.4	74.0
1599.250000	42.5	V	-18.3	31.5	74.0
2124.250000	47.1	V	-15.8	26.9	74.0
4960.000000	44.3	V	-6.6	29.7	74.0
7440.000000	45.5	V	-3.1	28.5	74.0
10979.250000	48.4	V	1.0	25.6	74.0
14324.625000	51.8	V	4.9	22.2	74.0
18482.125000	41.7	V	-9.2	32.3	74.0
21478.125000	41.1	V	-6.0	32.9	74.0
23645.500000	42.7	V	-4.2	31.3	74.0

AV

Frequency (MHz)	Average (dBμV/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBμV/m)
1606.750000	29.5	H	-18.3	24.5	54.0
2131.000000	26.9	H	-15.7	27.1	54.0
4960.000000	37.2	H	-6.6	16.8	54.0
7440.000000	42.8	H	-3.1	11.2	54.0
10587.375000	36.4	H	1.1	17.6	54.0
14287.500000	39.4	H	4.8	14.6	54.0
18246.750000	29.2	H	-9.0	24.8	54.0
21324.125000	29.2	H	-6.3	24.8	54.0
23503.750000	30.0	H	-4.2	24.0	54.0
1599.250000	28.5	V	-18.3	25.5	54.0
2124.250000	29.1	V	-15.8	24.9	54.0
4960.000000	35.0	V	-6.6	19.0	54.0
7440.000000	35.1	V	-3.1	18.9	54.0
10979.250000	34.8	V	1.0	19.2	54.0
14324.625000	40.2	V	4.9	13.8	54.0
18482.125000	30.2	V	-9.2	23.8	54.0
21478.125000	30.2	V	-6.0	23.8	54.0
23645.500000	30.5	V	-4.2	23.5	54.0

6. List of Tables

Table 1: List of Test and Measurement Equipment	5
Table 2: Measurement Uncertainty	6
Table 3: Technical Specification of EUT	7
Table 4: Independent Operation Modes.....	8
Table 5: Power parameter value.....	9
Table 6: Auxiliary Equipment.....	9
Table 7: Antenna Requirement.....	10
Table 8: 6dB & 99% Bandwidth	12
Table 9: Peak Output Power	19

7. List of Figures

Figure 1: Conducted Emission.....	36
Figure 2: Radiated Band-Edge, TM1	38
Figure 3: Radiated Band-Edge, TM3	38
Figure 4: Radiated Spurious Emission, TM1, 30MHz to 1GHz	40
Figure 5: Radiated Spurious Emission, TM1, 1GHz to 25GHz.....	41
Figure 6: Radiated Spurious Emission, TM2, 30MHz to 1GHz	43
Figure 7: Radiated Spurious Emission, TM2, 1GHz to 25GHz.....	44
Figure 8: Radiated Spurious Emission, TM3, 30MHz to 1GHz	46
Figure 9: Radiated Spurious Emission, TM3, 1GHz to 25GHz.....	47