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Radio measurements on AIR 5322 B258A

Rev1 2022-04-12: Frequency stability added.

Product name: AIR 5322 B258A Product number: KRD 901 200/2

RISE Research Institutes of Sweden AB Vehicles and Automation – EMC-ICT

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Summary

Standard Listed part of	Compliant
FCC CFR 47 part 30 Subpart C	
2.1046/ 30.202 RF power output	Yes
2.1049 Occupied bandwidth	Yes
2.1053/ 30.203 Field strength of spurious radiation	Yes
2.1055 Frequency stability	Yes



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Description of the test object

Equipment:	Radio equipment AIR 5322 B258A Product number: KRD 901 200/2 containing KRX 101 03/1 Rev. R1A with FCC ID: TA8AKRX10103
Hardware revision state:	R1A
Tested configuration:	3GPP NR TDD
Frequency range:	TX/ RX: 24.25 – 24.45 and 24.75 – 25.25 GHz
No of supported beams:	Config mode 0: 4 beams in 2 orthogonal polarizations each, 8 beams in total. Config mode 1: 2 beams in 2 orthogonal polarizations each, 4 beams in total. Config mode 2: 1 beam in 2 orthogonal polarizations each, 2 beams in total.
Operating bandwidth:	Config mode 0: 4 segments of 200 MHz (700 MHz in total) Config mode 1: 2 segments of 400 MHz (600 MHz in total) Config mode 2: 1 segment of 400 MHz
Nominal Output power (EIRP):	Config mode 0: 47 dBm/ beam and polarization Config mode 1: 53 dBm/ beam and polarization Config mode 2: 59 dBm/ beam and polarization
RF configurations:	TX Diversity, SU and MU MIMO up to 2 layers 1x(2x2), Contiguous Spectrum (CS) and Non-Contiguous spectrum (NCS), Carrier Aggregation (CA) intra-band supported
Antenna beam steering:	Azimuth ± 60 deg, elevation ± 15 deg
Channel bandwidth(s)/ Sub Carrier Spacing:	50, 100 and 200 MHz/ 120 kHz
Modulations:	QPSK, 16QAM and 64QAM
Emission designators:	45M9W7D, 94M8W7D and 189MW7D
Emission designators Carrier Aggregation:	Intra-band Maximum 492MW7D (5x100 MHz) Inter-band Maximum 680MW7D (200 + 500 MHz)
RF power Tolerance:	+2.4/ -2.0 dB
CPRI Speed	10.1 and 24.3 Gbps

The information above is supplied by the manufacturer.

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Purpose of test

The purpose of the tests is to verify compliance to the performance characteristics specified in applicable items of FCC CFR 47 Part 30.

Operation modes during measurements

The measurements were performed with the test object transmitting test models as defined in 3GPP TS 38.141-2. Test model NR-FR2 TM 1.1 is used to represent QPSK, test model NR-FR2 TM 3.2 to represent 16QAM, test model NR-FR2 TM 3.1 to represent 64QAM modulation

The settings below were deemed representative for worst case settings, for all traffic scenarios when settings with different modulations and RF configurations was found to represent worst case settings.

MIMO mode, NR-FR2 TM1.1, QPSK with the beams locked in boresight. All measurements were performed with the test object configured for maximum transmit power.

The measurement shall be done during active part of transmission, or if the measurement is performed with constant duty cycle <98%, the result shall be adjusted for the duty cycle according to ANSI C63.26 5.2.4.3.4. The duty cycle was measured to 74% and to compensate for this 1.30 dB was added to the test results.

Measurements

The test object was powered with -48 VDC by an external power supply. Additional connections are documented in the setup drawings for radiated measurements.

Evaluation of spurious emissions have been done in several beam directions, including extreme settings both in azimuth and elevation planes. Results have shown that Beam index 0/Boresight can represent worst case.



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RISE 10 MHz reference was connected to the signal analyser as external reference, during all measurements.

Far field distance for power, OBW and Band edge measurements is 4.66 m, based on the EUT antenna dimensions and the highest transmitter frequency (25.25 GHz).

Far field distances for OOB emissions is based on the measurement antenna dimension and highest frequency in the measurement range :

Frequency range [GHz]	Far field distance R [m]	Measurement distance [m]
18 - 26.5	0.73	5
26.5 - 40	0.48	5
40 - 60	0.34	3
60 - 90	0.22	1
90 - 100	0.17	1

Formula for far field distance calculation, with R being far field distance and D meaning antenna aperture size:

 $R = 2x D^2 / \lambda$

References

Measurements were done according to relevant parts of the following standards:

CFR 47 part 30, June 2021 ANSI C63.26-2015 KDB 842590 D01 Upper Microwave Flexible Use Service v01r02 KDB 971168 D01 Power Meas License Digital Systems v03r01 KDB 971168 D03 IM Emission Repeater Amp v01 3GPP TR 38.141-2 V15.9.0 3GPP TR 37.842 V13.3.0 (2020-01)

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Measurement equipment

	Calibration Due	RISE number
Anechoic chamber, Hertz	2021-09	BX50194
R&S FSW 43	2021-07	902 073
R&S ESU 40	2021-07	901 385
R&S ZNB 40	2021-07	BX50051
RF Cable VNA-calibration	2022-01	BX50189
RF Cable VNA-calibration	2022-01	BX50190
RF Cable	2021-09	BX50192
RF Cable	2022-05	BX81423
RF Cable	2022-04	KWP04236
RF Cable	2021-09	503 681
RF Cable FSW-B21	2021-09	BX62069
RF Cable FSW-B21	2021-09	BX62073
Attenuator 20 dB	2022-01	BX90205
Bilog antenna Schaffner 6143A	2021-08	504079
EMCO Horn Antenna 3115	2021-07	502 175
EMCO Horn Antenna 3115	2021-12	902 212
EMCO Horn Antenna 3116	2021-07	503 279
Flann STD Gain Horn Antenna 20240-20	-	KWP02600
Flann STD Gain Horn Antenna 22240-20	-	KWP02601
Flann STD Gain Horn Antenna 24240-20	-	BX92414
Flann STD Gain Horn Antenna 26240-20	-	BX92416
Flann STD Gain Horn Antenna 27240-20	-	BX92417
Mixer FS-Z60	2023-09	BX90566
Mixer FS-Z90	2022-01	BX90567
Mixer FS-Z110	2024-01	BX81425
μComp Nordic, Low Noise Amplifier	2022-01	901 544
Miteq, Low Noise Amplifier	2022-01	503 278
Temperature and humidity meter, Testo 615	2021-06	503 498

Frequency stability 2022-02

	Calibration Due	RISE number
R&S FSW 43	2022-07	902 073
RF Cable	2022-04	BX50236
EMCO Horn Antenna 3116	2024-06	503 279
Temperature Chamber	-	503 360
Testo 635, temperature and humidity meter	2022-07	504 203
Multimeter Fluke 87	2022-05	502 190

EAB Measurement equipment

Calibrated at RISE before testing.

	Calibration Due	S/N
Eravant SCF-21306340-SFSF-B3 Bandpass filter	2022-05	04881-01
Eravant SCF-34312340-KFKF-B3 Bandpass filter	2022-05	04876-01

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Uncertainties

Measurement and test instrument uncertainties are described in the quality assurance documentation "SP-QD 10885". The uncertainties are calculated with a coverage factor k=2 (95% level of confidence).

Compliance evaluation is based on a shared risk principle with respect to the measurement uncertainty.

Reservation

The test results in this report apply only to the particular test object as declared in the report.

Delivery of test object

The test object was delivered: 2021-04-14.

Manufacturer's representative

Mikael Jansson, Ericsson AB.

Test engineers

Tomas Lennhager and Björn Skönvall, RISE

Test participant(-s)

None



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Test frequencies used for radiated measurements

Frequency Hor/ Ver [MHz]	Symbolic name	Config mode	Comment
24275.04	BL_{50}	2	50 MHz BW, TX bottom frequency configuration lower band
24425.04	TL_{50}	2	50 MHz BW, TX top frequency configuration lower band
24775.08	BH50	2	50 MHz BW, TX bottom frequency configuration higher band
25225.08	TH ₅₀	2	50 MHz BW, TX top frequency configuration higher band
24300.00	BL100	2	100 MHz BW, TX bottom frequency configuration lower band
24800.04	BH100	2	100 MHz BW, TX bottom frequency configuration higher band
25200.00	TH ₁₀₀	2	100 MHz BW, TX top frequency configuration higher band
24350.04	BL200	2	200 MHz BW, TX bottom frequency configuration lower band
24850.08	BH200	2	200 MHz BW, TX bottom frequency configuration higher band
25150.08	TH200	2	200 MHz BW, TX top frequency configuration higher band
24800.04 24900.00 25000.08 25100.04	BH4 ₁₀₀	2	100 MHz BW, 4 carrier, TX Bottom frequencies configuration lower band
24275.04 24325.08 24425.04	BimL ₅₀	2	50 MHz BW, 3 carrier, TX bottom frequencies configuration lower band
24275.04 24375.00 24425.04	TimL ₅₀	2	50 MHz BW, 3 carrier, TX top frequencies configuration lower band
24775.08 24825.00 25125.00	BimH ₅₀	2	50 MHz BW, 3 carrier, TX bottom frequencies configuration higher band
24875.04 25175.04 25225.08	TimH ₅₀	2	50 MHz BW, 3 carrier, TX top frequencies configuration higher band

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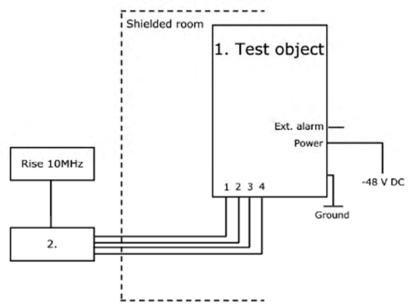
Frequency Hor/ Ver [MHz]	Symbolic name	Config mode	Comment
24275.04 24325.08 24375.00 24425.04 25075.08 25125.00 25175.04 25225.08	BT850	1	50 MHz BW, 8 carrier, bottom and top frequencies configuration
24275.04 24325.08 24775.08 24825.00 24975.00 25025.04 25175.04 25225.08	BMT8 ₅₀	0	50 MHz BW, 8 carrier, bottom near mid and top frequencies configuration
24800.04 24900.00 25000.08 25100.04 25200.00	CA5 ₁₀₀	1	100MHz BW, 5 carrier higher band

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Test setup: radiated measurements



Test object:

1.	Air 5322 B258A, KRD 901 200/2, rev. R1A, s/n: E23C835113,
	Radio Software: CXP 203 0045/1, rev. R9A779
	containing KRX 101 03/1 Rev. R1A with FCC ID: TA8AKRX10103
	For Frequency stability test 2022-02
	Radio Software: CXP 203 0045/1, rev. R11C957

Associated equipment:

2.	Testing Equipment:
	CT11, LPC102494/1, rev. R2A, s/n: T01G487940, BAMS – 1001967409
	For Frequency stability test 2022-02
	Baseband 6630, KDU 137 848/1, rev. R3B, s/n: E23B720988
	with software: CXP9024418/15, rev. R47A306

Functional test equipment:

2. Computer, Mac Mini, BAMS - 1001997578
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Interfaces:

Power input configuration DC (KRD 901 200/2): -48 VDC	Power
EXT Alarm, shielded multi-wire	Signal
1, Optical Interface Link, single mode opto fibre	Signal
2, Optical Interface Link, single mode opto fibre	Signal
3, Optical Interface Link, single mode opto fibre	Signal
4, Optical Interface Link, single mode opto fibre	Signal
Ground wire	Ground

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RF power output measurements according to CFR 47 §30.202

Date	Temperature	Humidity
2021-05-21	$23 \text{ °C} \pm 3 \text{ °C}$	20 % ± 5 %
2021-06-04	$24 \ ^{\circ}C \pm 3 \ ^{\circ}C$	26 % ± 5 %

Test set-up and procedure

The test object was located in a anechoic chamber. The measuring antenna was aligned to the centre of the PAAM. A turn table was used to find the highest output power. A signal analyzer with the channel power function activated was used to measure the output power with the RMS detector activated. The bandwidth setting of the channel power function was set to 100 MHz.

A substitution measurement defined in 3GPP TR 37.842 chapter 10.3.1.1.2 was used to get the actual correction factor (Transducer factor A-D in the figure 1 below) with a Network analyzer (ZNB 40).

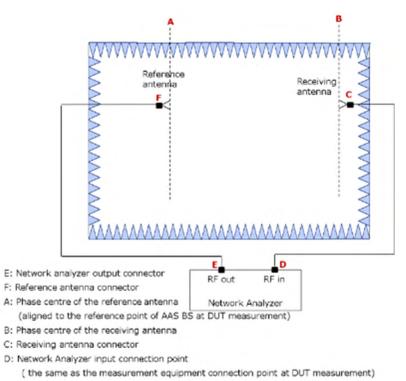


Figure 1: Indoor Anechoic Chamber calibration system setup for EIRP

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Stage 1 - Calibration:

- 1) Connect the reference antenna and the receiving antenna to the measurement RF out port and RF in port of the network analyzer, respectively, as shown in figure 1.
- 2) Install the reference antenna with its *beam peak direction* and the height of its phase centre aligned with the receiving antenna.
- Set the centre frequency of the network analyzer to the carrier centre frequency of the tested signal for EIRP measurement of the EUT and measure LF_{EIRP, E→D}, which is equivalent to 20log|S21| (dB) obtained by the network analyzer: LF_{EIRP, E→D}: Pathloss between E and D in figure 1.
- 4) Measure the cable loss, $LF_{EIRP, E \rightarrow F}$ between the reference antenna connector and the network analyzer connector:

 $LF_{EIRP, E \rightarrow F}$: Cable loss between E and F in figure 1.

 5) Calculate the calibration value between A and D with the following formula: L_{EIRP_cal, A→D} = LF_{EIRP, E→D} + G_{REF_ANT_EIRP, A→F} -LF_{EIRP, E→F}. L_{EIRP_cal, A→D}: Calibration value between A and D in figure 1. Was implemented in the spectrum analyzer as a transducer. G_{REF_ANT_EIRP, A→F}: Antenna gain of the reference antenna.

Stage 2 - Measurement:

- 6) Uninstall the reference antenna and install the EUT with the manufacturer declared coordinate system reference point in the same place as the phase centre of the reference antenna. The manufacturer declared coordinate system orientation of the EUT is set to be aligned with the testing system.
- 7) Measure the mean power, $P_{R_EUT_EIRP, D}$, D in figure 1.
- 8) Calculate the EIRP with the following formula:

 $EIRP = P_{R_EUT_EIRP, D} + L_{EIRP_cal, A \rightarrow D}$

Test Setup, measuring distance 5m:

Measurement equipment	RISE number
Anechoic chamber, Hertz	BX50194
R&S FSW 43	902 073
R&S ZNB 40	BX50051
EMCO Horn Antenna 3116	503 279
FLANN Std gain 20240-20	KWP02600
RF Cable	BX81423
RF Cable VNA-calibration	BX50189
RF Cable VNA-calibration	BX50190
RF Cable	KWP04236
RF Cable	BX50192
Testo 615, temperature and humidity meter	503 498

Measurement uncertainty: 3.3 dB

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Results

Single carrier Config mode 2

Beam index 0 Bore site, Bandwidth 50MHz, QPSK

Nominal rated output power (EIRP) per Beam: 59 dBm/ Polarization.

	Output power per 100 MHz, EIRP [RMS dBm] Vertical/ Horizontal
Symbolic name	Carrier 1
BL ₅₀	59.17/ 59.79
BH50	57.95/ 59.29
TH ₅₀	58.52/ 59.51

Beam index 0 Bore site, Bandwidth 100MHz, QPSK Nominal rated output power (EIRP) per Beam: 59 dBm/ Polarization.

	Output power per 100 MHz, EIRP [RMS dBm] Vertical/ Horizontal					
Symbolic name	Carrier 1					
BL100	59.32/ 59.55					
BH_{100}	57.75/ 58.95					
TH_{100}	58.55/ 59.35					

Beam index 0 Bore site, Bandwidth 200MHz, QPSK

Nominal rated output power (EIRP) per Beam: 59 dBm/ Polarization.

	Output power per 100 MHz, Horize		
Symbolic name	Carrier 1 Part A	Carrier 1 Part B	Total (per 200 MHz)
BL ₂₀₀	56.53/ 57.22	56.57/ 56.68	59.56/ 59.97
BH200	55.35/ 56.65	55.80/ 56.75	58.59/ 59.71
TH ₂₀₀	55.58/ 56.69	56.10/ 56.86	58.86/ 59.79

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Multi carrier

4-Carrier Config mode 2

Beam index 0 Bore site, Bandwidth 100MHz, QPSK Nominal rated output power (EIRP) per Beam: 59 dBm/ Polarization.

	Output power per 100 MHz, EIRP [RMS dBm] Vertical/ Horizontal						
Symbolic name	Carrier 1 Carrier 2 Carrier 3 Carrier 4 Total (per 400 MHz)						
BH4100	52.69/ 53.61	52.49/ 53.51	52.94/ 53.65	52.76/ 54.01	58.74/ 59.72		

8-Carrier Config mode 1

Beam index 0 Boresight, Carrier Bandwidth 50 MHz, QPSK Nominal rated output power (EIRP) per Beam: 53 dBm/ Polarization

Nominal fated output power (Entry) per Beam. 55 dBm/ Folanzation.										
		Output power per 50 MHz, EIRP [RMS dBm] Vertical/ Horizontal								
	Beam 1 Beam 2									
Symbolic name	А	В	С	D	Total Power Beam 1 (per 200 MHz)	E	F	G	Н	Total power Beam 2 (per 400 MHz)
BT850	47.21/ 47.89	48.05/ 48.88	48.31/ 48.66	48.56/ 48.53	54.08/ 54.52	46.18/ 47.11	46.82/ 48.08	46.91/ 47.99	47.02/ 48.05	52.77/ 53.84

5-Carrier Config mode 1

Beam index 0 Boresight, Carrier Bandwidth 100 MHz, QPSK Nominal rated output power (EIRP) per Beam: 53 dBm/ Polarization.

	Output power per 100 MHz, EIRP [RMS dBm] Vertical/ Horizontal						
	Beam 1 Beam 2						m 2
Symbolic name	А	В	С	Total Power Beam 1 (per 200 MHz)	E	F	Total power Beam 2 (per 400 MHz)
CAH5100	48.83/ 49.17	48.09/ 48.90	48.38/ 48.71	53.22/ 53.70	49.80/ 50.11	50.20/ 50.41	53.01/ 53.27

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8-Carrier Config mode 0

Beam index 0 Boresight, Carrier Bandwidth 50 MHz, QPSK Nominal rated output power (EIRP) per Beam: 47 dBm/ Polarization.

	Output power per 50 MHz, EIRP [RMS dBm] Vertical/ Horizontal						
	Beam 1				Beam 2		
Symbolic name	A B Total Power Beam 1 (per 100 MHz)			С	D	Total power Beam 2 (per 100 MHz)	
BMT850	45.01/44.73 45.35/45.56 48.19/48.18			42.96/43.64	43.1/44.49	46.04/47.10	
	Beam 3				Beam 4		
Symbolic name	E	F	Total Power Beam 3 (per 100 MHz)	G	Н	Total power Beam 4 (per 100 MHz)	
BMT850	44.40/44.62	43.43/45.30	46.95/ 47.98	43.89/43.64	43.89/44.34	46.90/47.01	

Limits

CFR47 §30.202 Power limits.

(a) For fixed and base stations operating in connection with mobile systems, the average power of the sum of all antenna elements is limited to an equivalent isotopically radiated power (EIRP) density of +75dBm/100 MHz. For channel bandwidths less than 100 MHz the EIRP must be reduced proportionally and linearly based on the bandwidth relative to 100 MHz.

Complies? Yes

Occupied bandwidth measurements according to	0 CFR47 §2.1049
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Date	Temperature	Humidity
2021-05-20	$23 \text{ °C} \pm 3 \text{ °C}$	25 % ± 5 %
2021-05-21	$23 \ ^{\circ}C \pm 3 \ ^{\circ}C$	20 % ± 5 %

Test set-up and procedure

The test object was located in a anechoic chamber. The measuring antenna was aligned to the centre of the of the PAAM. A turn table was used to find the highest output power. A signal analyzer with Peak detector and max hold was used to measure the OBW.

Test Setup, measuring distance 5m:

Measurement equipment	RISE number
Anechoic chamber, Hertz	BX50194
R&S FSW 43	902 073
R&S ZNB 40	BX50051
EMCO Horn Antenna 3116	503 279
FLANN Std gain 20240-20	KWP02600
RF Cable	BX81423
RF Cable VNA-calibration	BX50189
RF Cable VNA-calibration	BX50190
RF Cable	KWP04236
RF Cable	BX50192
Testo 615, temperature and humidity meter	503 498

Measurement uncertainty: 3.3 dB

Results

Single carrier, Config mode 2, Bandwidth: 50MHz Modulation: QPSK

Diagram	Symbolic name	Polarization	Occupied BW (99%) [MHz]
1.1	BH ₅₀	Hor	45.755
1.2	BH ₅₀	Ver	45.921

Single carrier, Config mode 2, Bandwidth: 100MHz Modulation: QPSK

Diagram	Symbolic name	Polarization	Occupied BW (99%) [MHz]
1.3	BH_{100}	Hor	94.419
1.4	BH_{100}	Ver	94.829

Single carrier, Config mode 2, Bandwidth: 200MHz Modulation: QPSK

Diagram	Symbolic name	Polarization	Occupied BW (99%) [MHz]
1.5	BH_{200}	Hor	188.558
1.6	BH_{200}	Ver	188.567

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Carrier Aggregation, Config mode 2, Bandwidth: 4x 100MHz, Modulation: QPSK

Diagram	Symbolic name	Polarization	Occupied BW (99%) [MHz]
1.7	BH4100	Hor	392.187
1.8	BH4100	Ver	391.555

Carrier Aggregation contiguous spectrum

Config mode 1, Bandwidth: 5x 100MHz, Modulation: QPSK

Diagram	Symbolic name	Polarization	Occupied BW (99%) [MHz]
1.9	CAH5100	Hor	490.875
1.10	CAH5100	Ver	491.577

Carrier Aggregation Non-contiguous spectrum

Config mode 0, Bandwidth: 7x 100MHz (2x 100MHz + 5x 100MHz) Calculated maximum aggregated bandwith: = 188.567 + 491.577 = 680.144 MHz



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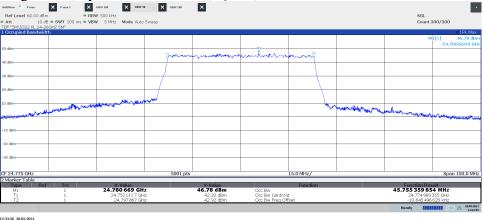


Diagram 1.2, Symbolic name: BH₅₀, QPSK, Vertical:

nteriev 🎫 Preas RefLevel 60.00 d		BW 500 kHz	085 W80	×				SGL	
		BW SMHz Mode Auto	Swaan						300/300
F *5M\5322 PL 24		DIN STATE MOVE Hold	oweep					Gounce	1007 300
Occupied Bandw	dth								01Pk M
								M	1[1] 44.78 d
									24.7701410
dBm				M1					
			Jum	monthorn	manner	an mart			
dBm			1						
d8m	-								
0 dBm	-								
0 dBm									
	A state water	neenverwerververter.	Y			www.	mannen	he many a	
dBm	Level and the second seco							and a whole who who who	A
and a second second second									and a second second second
0 dBm									
0 dBm									
o dem									
10 dBm-									
o upin									
24.775 GHz	-		5001 pts			15.0 MHz/			Span 150.0 M
Marker Table									
Type R	ef Trc	X-Value 24.770 141 GH		Y-Value 44.78 dBm	0	Function		Function Res 45.920 526 16	
M1 T1	1	24.770 141 GH 24.752 0891 GH		44.78 dBm 40.41 dBm	Occ Bw Occ Bw Centroid	4		45.920 526 16 24.775 049	
T2	1	24.798 009 6 GH		40.66 dBm	Occ Bw Freg Off			49.366 57	

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Diagram 1.3, Symbolic name: BH₁₀₀, QPSK, Horizontal:

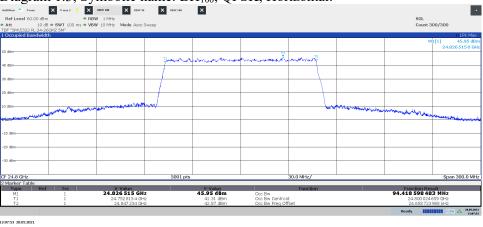


Diagram 1.4, Symbolic name: BH₁₀₀, QPSK, Vertical:

Ref Level 60.00 d Att 10 DF *5M\5322 PL 24	dB • SWT 100 m	RBW 1 MHz S • VBW 10 MHz Mode	Auto Sweep					SGL Count 3	00/300
Occupied Bandw	idth								O1Pk M
								M	1[1] 47.39
dBm				M1					24.787 942 0
			James	marman	amprox	mmmm			
dBm									
d8m									
dem									
dam									
			and						
dBm	-	1 mann	New York			- VA	hand when and		
تعلى والمعالية العراقة والمحالية المساحين	and the war of the Age	m					handren	approximation and a second	Hunner Helesson
dBm									
dBm									
dBm									
24.8 GHz			5001 p	its		30.0 MHz/	1		Span 300.0
4arker Table	ef Trc	X-Value		Y-Value		Function			
Type R M1	er Irc	24.787 942		47.39 dBm	Occ Bw	Function	1	Function Res 94.828 523 70	
T1 T2	î	24.7525 24.847411	33 GHz	42.23 dBm 43.54 dBm	Occ Bw Centroid Occ Bw Freq Off			24.799.997 -2.715.247	285 GHz

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Diagram 1.5, Symbolic name: BH₂₀₀, QPSK, Horizontal:

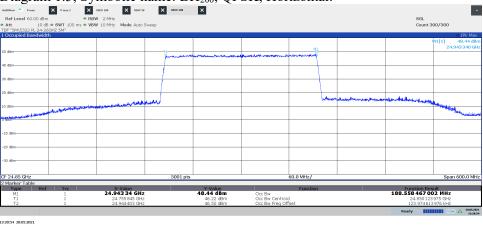


Diagram 1.6, Symbolic name: BH₂₀₀, QPSK, Vertical:

	10 dB • SWT 10		2 MHz 10 MHz Mo	ide Auto S	Sweep							SGL Count 3	00/300
DF *5M\5322 PL 2 Occupied Band	4-26GHZ 5MT width												O1Pk M
													M1[1] 48.42
d dBm									M1				24,939 140
00m						T1 Texastrony M	monormound	makensma	mostray				
dBm						(1 1				
UBII													
d8m													
					1					1			
dBm										1			
				ennorth	housen					lawrough,	mannethensemplym	water have a	
dBm	ilines quanture	and a second									un station and a second second		And any of standing of some series.
Bm													
I dBm-													
0 dBm													
0 dBm													
24.85 GHz						5001 pt	5		60.0 MHz/				Span 600.01
Marker Table							-						
Туре	Ref Trc		X-Va	lue			Y-Value		Function			Function Res	ult
M1	1		24.939				48.42 dBm	Occ Bw				188.567 095 74	
T1 T2	1			586 GHz 427 GHz			44.69 dBm 45.26 dBm	Occ Bw Centroid Occ Bw Freq Off	a			24.850143 143.86514	

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Diagram 1.7, Symbolic name: BH4100, QPSK, Horizontal:

Ref Level 60.00 dBm		08W 388 X 08	N 50	X 08W 299	Parwar cc 8	×				s	GL.
Att 10 dB	• SWT 100 ms • VBY		to Sweep								Count 300/300
F *5M\5322 PL 24-260	GHZ 5M"										
Occupied Bandwidth	h										O 1Pk Max
											M1[1] 49.74 dB
							M1				25.138 120 G
dBm			-	mon	1 amportane	another many to	amonto	-			
				1	I V I I I I I I I I	William Vi	1 1				
dBm			-	-	•	Y Y					
				1							
d8m											
oom -											
dBm		A	and in					from	and the second second	and the second	1 AN
	man	Marine	-							and the second second	
dBm	and a second second		-								The second se
المجيدة والمكمور وسيتقت والمجار والف											
dBm-											
o dBm											
dom											
) dBm											
m8b 0			-								
0.1.05.011				5001							
24.95 GHz				5001 pts			120.0 MHz/				Span 1.2 Gł
Marker Table Type Ref	Tre	X-Value			Y-Value		Function			Free at	on Result
M1 Kei	1	25.138 12 G	Hz		49.74 dBm	Occ Bw	Function			392.1867	56 235 MHz
T1	î	24.754075 0	Hz		46.17 dBm	Occ Bw Centrol	d			24.9	950 168 038 GHz
T2	1	25.146 261 0	Hz		45.96 dBm	Occ Bw Freq Of	fset			168.0	038 372 948 kHz
										Ready	20052 1047

Diagram 1.8, Symbolic name: BH4100, QPSK, Vertical:

F *5M\5322 PL 24-2	B • SWT 100 ms • 6GHZ 5M"	 VBW 10 MHz 	Mode Auto	Sweep								Count 3	
Occupied Bandwid	lth										1		01Pk1 49.24
								M1					24.988 150
dBm					There was	-	at and the	And Alexan N	-				
						. I. A.		Y and the second s	and a second				
Bm													
Bm						-							
Bm				- 1						hum	Annan .		
	- Andrew Martine		march	and a							an market		
Bm	1 Alexandream	and a state of the	-									and state of the s	
مقرأي كمطوعهما فالمتجم ستحدث مراسلت													and some water and in the light
im						-							
dBm													
d8m													
d8m						-							
24.95 GHz	1				5001 pt	5			120.0 MHz/		1	1	Span 1.2
larker Table													
Type Ref	f Trc		X-Value			Y-Val	ue		Function			Function Res	ult
	1								a				
M1 T1 T2	1		988 15 GHz 24.754 59 GHz 5.146 145 GHz			49.24 (46.00 46.13	dBm	Occ Bw Occ Bw Centroid Occ Bw Freq Off	d			391.555 303 80 24.950 367 367.294 028	294 GHz

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Diagram 1.9, Symbolic name: CAH5₁₀₀, QPSK, Horizontal:



Diagram 1.10, Symbolic name: CAH5100, QPSK, Vertical::

F *5M\5322 PL 24-2	IB • SWT 100 ms • VB' 26GHZ 5M"	W 10 MHZ Mode Auto	sweep							Coun	t 300/300
Occupied Bandwid	lth										01Pk // M1[1] 48.46
dBm								-			25.165 270
							M1				
Bm				T1		more popularion					
				June ward	have been been	A A A A A A A A A A A A A A A A A A A	1				
Bm											
Bro											
8m-		A AN	$\Delta \alpha$						and the second		
	and a start and a start of the		٣						min the		
:BmBth	- Alle	Y ·	-								
مىلەسىلەس ۋە يەپ	A superior and a									and the second designed and	and advertige of the sector
im			-								
dBm											
dBm											
uom											
2m											
25.0 GHz arker Table				5001 pts			150.0 MHz/				Span 1.5
Type Rel	f Trc	X-Value			Y-Value		Function			Function F	
M1 T1	1	25.165 27 GH 24.754 444 GH			48.46 dBm 44.38 dBm	Occ Bw Occ Bw Centroid	d			491.577 093	766 MHz 232 793 GHz
T2	1	25.246 021 GF			44.43 dBm	Occ Bw Frea Off					940 228 kHz

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Field strength of spurious radiation measurements according to CFR 47 §30.203

Date	Temperature	Humidity
2021-05-25	$23 \text{ °C} \pm 3 \text{ °C}$	$26\% \pm 5\%$
2021-05-26	$22 \ ^{\circ}C \pm 3 \ ^{\circ}C$	28 % ± 5 %
2021-05-27	$23 \ ^{\circ}C \pm 3 \ ^{\circ}C$	25 % ± 5 %
2021-05-28	$23 \ ^{\circ}C \pm 3 \ ^{\circ}C$	27 % ± 5 %
2021-05-31	$25 \ ^{\circ}C \pm 3 \ ^{\circ}C$	28 % ± 5 %
2021-06-01	$23 \text{ °C} \pm 3 \text{ °C}$	25 % ± 5 %
2021-06-02	$24 \ ^\circ C \pm 3 \ ^\circ C$	25 % ± 5 %
2021-06-03	$24 ^{\circ}\text{C} \pm 3 ^{\circ}\text{C}$	25 % ± 5 %
2021-06-04	$24 \ ^\circ C \pm 3 \ ^\circ C$	$26\%\pm5\%$
2021-06-10	$23 ^{\circ}\text{C} \pm 3 ^{\circ}\text{C}$	25 % ± 5 %

The measurements were performed with both horizontal and vertical polarization of the antenna. The measurement was performed with a RBW of 1 MHz. The antenna distance and test object height in the different frequency ranges is descried below.

In the test range from 40 - 100 GHz

A propagation loss in free space was calculated. The used formula was

 $\gamma = 20 \log \left(\frac{4\pi D}{\lambda}\right), \ \gamma$ is the propagation loss and D is the antenna distance. For 40 – 60 GHz D was 3.0m and for 60 – 100 GHz D was 1.0m.

In the test range from 30MHz - 40 GHz a substitution measurement defined in 3GPP TR 37.842 chapter 10.3.1.1.2 was used to get the actual correction factor (Transducer factor A-D in the figure 1 below) with a Network analyzer (ZNB 40).

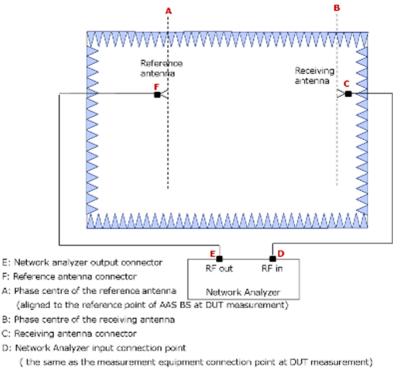


Figure 1: Indoor Anechoic Chamber calibration system setup for EIRP

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Stage 1 - Calibration:

- 1) Connect the reference antenna and the receiving antenna to the measurement RF out port and RF in port of the network analyzer, respectively, as shown in figure 1.
- 2) Install the reference antenna with its *beam peak direction* and the height of its phase centre aligned with the receiving antenna.
- Set the centre frequency of the network analyzer to the carrier centre frequency of the tested signal for EIRP measurement of the EUT and measure LF_{EIRP, E→D}, which is equivalent to 20log|S21| (dB) obtained by the network analyzer: LF_{EIRP, E→D}: Pathloss between E and D in figure 1.
- 4) Measure the cable loss, $LF_{EIRP, E \rightarrow F}$ between the reference antenna connector and the network analyzer connector:

 $LF_{EIRP, E \rightarrow F}$: Cable loss between E and F in figure 1.

 5) Calculate the calibration value between A and D with the following formula: L_{EIRP_cal, A→D} = LF_{EIRP, E→D} + G_{REF_ANT_EIRP, A→F} -LF_{EIRP, E→F}. L_{EIRP_cal, A→D}: Calibration value between A and D in figure 1. Was implemented in the spectrum analyzer as a transducer. G_{REF_ANT_EIRP, A→F}: Antenna gain of the reference antenna.

Stage 2 - Measurement:

- 6) Uninstall the reference antenna and install the EUT with the manufacturer declared coordinate system reference point in the same place as the phase centre of the reference antenna. The manufacturer declared coordinate system orientation of the EUT is set to be aligned with the testing system.
- 7) Measure the mean power, $P_{R_EUT_EIRP, D}$, D in figure 1.
- 8) Calculate the EIRP with the following formula:

 $EIRP = P_{R_EUT_EIRP, D} + L_{EIRP_cal, A \rightarrow D}$

The measurement procedure was as the following:

- 1) An EIRP pre-scan with the measurement antenna in horizontal and vertical polarization is performed with RMS detector and Max Hold on the spectrum analyzer. The turn table was slowly rotating form 0-360 degrees.
- 2) EIRP spurious radiation on frequencies closer than 10 dB to the TRP limit in the pre-scan a manual search for maximum response was done.
- 3) If the recorded EIRP value was above the TRP limit, a TRP measurement was done according to KDB 842590 D01 chapter 4.4. Overview of the methods.
 - a) Two Cut method according to KDB 842590 D01 chapter 4.4.2.2
 - i. EUT set in vertical orientation
 - ii. EIRP measurement samples with horizontal and vertical polarization of the measurement antenna. Angular step size based on frequency and dimension of the EUT
 - iii. EUT set in horizontal orientation
 - iv. EIRP measurement samples with horizontal and vertical polarization of the measurement antenna. Angular step size based on frequency and dimension of the EUT.
 - v. TRP = EIRP measurement samples averaged+ Δ TRP. (Δ TRP = Margin factor based on grid selection).

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- b) Two Cut method when pattern multiplication is applicable and used according to KDB 842590 D01 chapter 4.4.2.3
 - i. EUT set in vertical orientation

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- ii. EIRP measurement samples with horizontal and vertical polarization of the measurement antenna. Angular step size based on frequency and dimension of the EUT
- iii. EUT set in horizontal orientation
- iv. EIRP measurement samples with horizontal and vertical polarization of the measurement antenna. Angular step size based on frequency and dimension of the EUT.
- v. TRP is calculated using the formula in Appendix E of KDB 842590 D01
- c) EIRP to Conducted Power Conversion in Band Edge Using Antenna Gain according to KDB 842590 D01 chapter 4.4.2.5
 - i. Convert each radiated measurement to conducted power/BW using the equations:

Conducted Power level (dBm) at any frequency/BW = Measured EIRP level (dBm)/BW – EUT antenna Gain (dBi)

- ii. Sum the radiated power Horizontal and Vertical polarisations for total conducted power level/BW.
- iii. Evaluate the pass/fail decision by comparing total conducted power level/BW against the applicable TRP limit.
- d) Spherical Grid Method, according to KDB 842590 D01 chapter 4.4.2.4
 - i. EUT set in horizontal orientation bottom of the EUT to the right.
 - ii. EIRP measurement samples with horizontal and vertical polarization of the measurement antenna. Angular step size of the turn table was 15 degrees from 0 - 165 degrees and 195 - 360 degrees. In cone of radiation 165 - 195degrees the step size of the turn table was 1 degree.
 - iii. EUT was changed in 15 degrees step from horizontal bottom right to horizontal bottom to the left (twelve steps). Step ii. was repeated for all twelve steps.
 - iv. TRP was calculated according to Appendix B in KDB 842590 D01.

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Measurement equipment

	RISE number
Anechoic chamber, Hertz	BX50194
R&S FSW 43	902 073
R&S ESU 40	901 385
R&S ZNB 40	BX50051
RF Cable VNA-calibration	BX50189
RF Cable VNA-calibration	BX50190
RF Cable	BX50192
RF Cable	BX81423
RF Cable	KWP04236
RF Cable	503 681
RF Cable FSW-B21	BX62069
RF Cable FSW-B21	BX62073
Attenuator 20 dB	BX90205
Bilog antenna Schaffner 6143A	504079
EMCO Horn Antenna 3115	502 175
EMCO Horn Antenna 3115	902 212
EMCO Horn Antenna 3116	503 279
Flann STD Gain Horn Antenna 20240-20	KWP02600
Flann STD Gain Horn Antenna 22240-20	KWP02601
Flann STD Gain Horn Antenna 24240-20	BX92414
Flann STD Gain Horn Antenna 26240-20	BX92416
Flann STD Gain Horn Antenna 27240-20	BX92417
Mixer FS-Z60	BX90566
Mixer FS-Z90	BX90567
Mixer FS-Z110	BX81425
μComp Nordic, Low Noise Amplifier	901 544
Miteq, Low Noise Amplifier	503 278
Temperature and humidity meter, Testo 615	503 498

EAB Measurement equipment

Calibrated at RISE before testing.

	S/N
Eravant SCF-21306340-SFSF-B3 Bandpass filter	04881-01
Eravant SCF-34312340-KFKF-B3 Bandpass filter	04876-01

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Results

Evaluation of spurious emissions have been done in several beam directions, including extreme settings both in azimuth and elevation planes. Results have shown that Beam index 0/Boresight can represent worst case.

The diagrams represents worst case configurations (Beam index 0 /Boresight) for each frequency	
range.	

range.						
Diagram	Symbolic name	Config mode	Pol	Frequency range	Measurement method	"Early exit?"
2.1a	BH50	2	Hor	30-1000 MHz	Pre scan Max hold EIRP	Yes
2.1b	BH ₅₀	2	Ver	30-1000 MHz	Pre scan Max hold EIRP	Yes
2.2a	BT850	1	Hor	30-1000 MHz	Pre scan Max hold EIRP	Yes
2.2b	BT850	1	Ver	30-1000 MHz	Pre scan Max hold EIRP	Yes
2.3a	BMT850	0	Hor	30-1000 MHz	Pre scan Max hold EIRP	Yes
2.3b	BMT850	0	Ver	30-1000 MHz	Pre scan Max hold EIRP	Yes
2.4a	BH ₅₀	2	Hor	1-18 GHz	Pre scan Max hold EIRP	Yes
2.4b	BH ₅₀	2	Ver	1-18 GHz	Pre scan Max hold EIRP	Yes
2.5a	BT850	1	Hor	1-18 GHz	Pre scan Max hold EIRP	Yes
2.5b	BT850	1	Ver	1-18 GHz	Pre scan Max hold EIRP	Yes
2.6a	BMT850	0	Hor	1-18 GHz	Pre scan Max hold EIRP	Yes
2.6b	BMT850	0	Ver	1-18 GHz	Pre scan Max hold EIRP	Yes
				18-23 GHz		No
2.7a	TimL ₅₀	2	Hor	23-23.5 GHz	Pre scan Max hold EIRP	Yes ²
				23.5-24 GHz		Yes ³
				18-23 GHz		No
2.7b	TimL ₅₀	2	Ver	23-23.5 GHz	Pre scan Max hold EIRP	Yes ²
				23.5-24 GHz		Yes ³
2.7c	TimL ₅₀	2	Hor/ Ver	22.8-22.9 GHz	Two cut TRP	Compliant to TRP limit
2.8a	BH50	2	Hor	18-23.3 GHz 23.3-24 GHz	Pre scan Max hold EIRP	Yes ¹ No
2.8b	BH50	2	Ver	18-23.3 GHz 23.3-24 GHz	Pre scan Max hold EIRP	Yes ¹ No
2.8c	BH50	2	Hor/ Ver	23.86-23.96 GHz	Two cut TRP	Compliant to TRP limit
2.9a	BimL ₅₀	2	Hor	18-23.4GHz 23.4-24 GHz	Pre scan Max hold EIRP	Yes ¹ No
2.9b	BimL ₅₀	2	Ver	18-23.4GHz 23.4-24 GHz	Pre scan Max hold EIRP	Yes ¹ No
2.9c	BimL ₅₀	2	Hor/ Ver	23.4-24 GHz	Two cut TRP	Compliant to TRP limit
2.9d	BimL ₅₀	2	Hor	23.6-24 GHz	Pre scan Max hold EIRP	No
2.9e	BimL ₅₀	2	Ver	23.6-24 GHz	Pre scan Max hold EIRP	No
2.9f	BimL ₅₀	2	Hor/ Ver	23.6-24GHz	Spherical grid Method TRP	Compliant to TRP limit [*]

¹⁾Compliant (5x LO) to TRP limit based on Lower EIRP compared to TimL₅₀ (Diagram 2.7)

²⁾ Compliant to TRP limit based on Lower EIRP compared to BH₅₀ (Diagram 2.8)

³⁾ Compliant to TRP limit based on Lower EIRP compared to BimL₅₀ (Diagram 2.9)

^{*)} Compliant to proposed rule change in FR Document Number: 2021-10536, Table 1—WRC-19 Resolution 750 Unwanted Emissions Permitted Within Any 200 Megahertz in the 23.6-24 GHz Passive Band "Current TRP limit IMT Base Stations: -33dBW"

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RISE Research Institutes of Sweden AB
Transaction 09222115557467084142
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Diagram	Symbolic name	Config mode	Pol	Frequency range	Measurement method	"Early exit?"
2.10a	BT8 ₅₀	1	Hor	18-24 GHz	Pre scan Max hold EIRP	Yes ^{1,2}
2.10b	BT850	1	Ver	18-24 GHz	Pre scan Max hold EIRP	Yes ^{1,2}
2.11a	BMT8 ₅₀	0	Hor	18-24 GHz	Pre scan Max hold EIRP	Yes ¹
2.11b	BMT850	0	Ver	18-24 GHz	Pre scan Max hold EIRP	Yes
2.12a	BL ₅₀	2	Hor	24-26.5 GHz	Pre scan Max hold EIRP	No
2.12b	BL ₅₀	2	Ver	24-26.5 GHz	Pre scan Max hold EIRP	No
2.12c	BL ₅₀	2	Hor	24-24.25 GHz	Pre scan Max average EIRP	Yes ^{4,5}
2.12d	BL ₅₀	2	Ver	24-24.25 GHz	Pre scan Max average EIRP	Yes ^{4,5}
2.13a	BimL ₅₀	2	Hor	24-26.5 GHz	Pre scan Max hold EIRP	No
2.13b	BimL ₅₀	2	Ver	24-26.5 GHz	Pre scan Max hold EIRP	No
2.13c	BimL ₅₀	2	Hor	24-24.25 GHz	Pre scan Max average EIRP	Yes ^{4,5}
2.13d	BimL ₅₀	2	Ver	24-24.25 GHz	Pre scan Max average EIRP	Yes ^{4,5}
2.13e	BimL ₅₀	2	Hor/ Ver	24-24.25 GHz	Pattern multiplication TRP	Compliant to TRP limit
2.14a	TL ₅₀	2	Hor	24-26.5 GHz	Pre scan Max hold EIRP	No
2.14b	TL ₅₀	2	Ver	24-26.5 GHz	Pre scan Max hold EIRP	No
2.14c	TL ₅₀	2	Hor	24.45-25.4 GHz	Pre scan Max average EIRP	Yes ⁴
2.14d	TL ₅₀	2	Ver	24.45-25.4 GHz	Pre scan Max average EIRP	Yes ⁴
2.15a	TimL ₅₀	2	Hor	24-26.5 GHz	Pre scan Max hold EIRP	No
2.15b	TimL ₅₀	2	Ver	24-26.5 GHz	Pre scan Max hold EIRP	No
2.15c	TimL ₅₀	2	Hor	24.45-25.4 GHz	Pre scan Max average EIRP	Yes ⁴
2.15d	TimL ₅₀	2	Ver	24.45-25.4 GHz	Pre scan Max average EIRP	Yes ⁴
2.16a	BH ₅₀	2	Hor	24-26.5 GHz	Pre scan Max hold EIRP	No
2.16b	BH ₅₀	2	Ver	24-26.5 GHz	Pre scan Max hold EIRP	No
2.16c	BH ₅₀	2	Hor	24-24.75 GHz	Pre scan Max average EIRP	Yes ⁴
2.16d	BH50	2	Ver	24-24.75 GHz	Pre scan Max average EIRP	Yes ⁴
2.17a	BimH ₅₀	2	Hor	24-26.5 GHz	Pre scan Max hold EIRP	No
2.17b	BimH ₅₀	2	Ver	24-26.5 GHz	Pre scan Max hold EIRP	No
2.17c	BimH ₅₀	2	Hor	24-24.75 GHz	Pre scan Max average EIRP	Yes ^{4,6}
2.17d	BimH ₅₀	2	Ver	24-24.75 GHz	Pre scan Max average EIRP	Yes ^{4,6}

¹⁾Compliant (5x LO) to TRP limit based on Lower EIRP compared to TimL₅₀ (Diagram 2.7)

²⁾ Compliant to TRP limit based on Lower EIRP compared to BH₅₀ (Diagram 2.8)

⁴⁾ Calculated conducted power based on antenna gain below limit

⁵⁾ Compliant to TRP limit based on Lower EIRP compared to BimL₅₀ (Diagram 2.13)

⁶⁾ Compliant to TRP limit based on Lower EIRP compared to TimH₅₀ (Diagram 2.19)

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Diagram	Symbolic name	Config mode	Pol	Frequency range	Measurement method	"Early exit?"
2.18a	TH50	2	Hor	24-26.5 GHz	Pre scan Max hold EIRP	No
2.18b	TH ₅₀	2	Ver	24-26.5 GHz	Pre scan Max hold EIRP	No
2.18c	TH ₅₀	2	Hor	25.25-26.5 GHz	Pre scan Max average EIRP	Yes ^{4,6}
2.18d	TH ₅₀	2	Ver	25.25-26.5 GHz	Pre scan Max average EIRP	Yes ^{4,6}
2.19a	TimH ₅₀	2	Hor	24-26.5 GHz	Pre scan Max hold EIRP	No
2.19b	TimH ₅₀	2	Ver	24-26.5 GHz	Pre scan Max hold EIRP	No
2.19c	TimH ₅₀	2	Hor	25.25-26.5 GHz	Pre scan Max average EIRP	No
2.19d	TimH ₅₀	2	Ver	25.25-26.5 GHz	Pre scan Max average EIRP	No
2.19e	TimH ₅₀	2	Hor/ Ver	25.25-26.2 GHz	Pattern multiplication TRP	Compliant to TRP limit
2.20a	BT850	1	Hor	24-26.5 GHz	Pre scan Max average EIRP	No
2.20b	BT850	1	Ver	24-26.5 GHz	Pre scan Max average EIRP	No
2.20c	BT850	1	Hor	24-24.25 GHz	Pre scan Max average EIRP	Yes ^{4,5}
2.20d	BT850	1	Ver	24-24.25 GHz	Pre scan Max average EIRP	Yes ^{4,5}
2.20e	BT850	1	Hor	25.25-26.5 GHz	Pre scan Max average EIRP	Yes ^{4,6}
2.20f	BT850	1	Ver	25.25-26.5 GHz	Pre scan Max average EIRP	Yes ^{4,6}
2.21a	BMT850	0	Hor	24-26.5 GHz	Pre scan Max average EIRP	No
2.21b	BMT850	0	Ver	24-26.5 GHz	Pre scan Max average EIRP	No
2.21c	BMT850	0	Hor	24-24.25 GHz	Pre scan Max average EIRP	Yes ^{4,5}
2.21d	BMT850	0	Ver	24-24.25 GHz	Pre scan Max average EIRP	Yes ^{4,5}
2.21e	BMT850	0	Hor	25.25-26.5 GHz	Pre scan Max average EIRP	Yes ^{4,6}
2.21f	BMT850	0	Ver	25.25-26.5 GHz	Pre scan Max average EIRP	Yes ^{4,6}

⁴⁾ Calculated conducted power based on antenna gain below limit ⁵⁾ Compliant to TRP limit based on Lower EIRP compared to BimL₅₀ (Diagram 2.13)

⁶⁾ Compliant to TRP limit based on Lower EIRP compared to TimH₅₀ (Diagram 2.19)

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Diagram	Symbolic name	Config mode	Pol	Frequency range	Measurement method	"Early exit?"
2.22a	BL ₅₀	2	Hor	26.5-28 GHz	Pre scan Max hold EIRP	Yes
2.22b	BL ₅₀	2	Ver	26.5-28 GHz	Pre scan Max hold EIRP	Yes
2.23a	BT850	1	Hor	26.5-28 GHz	Pre scan Max hold EIRP	Yes
2.23b	BT850	1	Ver	26.5-28 GHz	Pre scan Max hold EIRP	Yes
2.24a	BMT850	0	Hor	26.5-28 GHz	Pre scan Max hold EIRP	Yes
2.24b	BMT850	0	Ver	26.5-28 GHz	Pre scan Max hold EIRP	Yes
2.25a	TH ₅₀	2	Hor	28-40 GHz	Pre scan Max hold EIRP	Yes
2.25b	TH ₅₀	2	Ver	28-40 GHz	Pre scan Max hold EIRP	Yes
2.26a	BT850	1	Hor	28-40 GHz	Pre scan Max hold EIRP	Yes
2.26b	BT850	1	Ver	28-40 GHz	Pre scan Max hold EIRP	Yes
2.27a	BMT850	0	Hor	28-40 GHz	Pre scan Max hold EIRP	Yes
2.27b	BMT850	0	Ver	28-40 GHz	Pre scan Max hold EIRP	Yes
2.28a	BH ₅₀	2	Hor	40-60 GHz	Pre scan Max hold EIRP	Yes
2.28b	BH ₅₀	2	Ver	40-60 GHz	Pre scan Max hold EIRP	Yes
2.29a	BT850	1	Hor	40-60 GHz	Pre scan Max hold EIRP	Yes
2.29b	BT850	1	Ver	40-60 GHz	Pre scan Max hold EIRP	Yes
2.30a	BMT850	0	Hor	40-60 GHz	Pre scan Max hold EIRP	Yes
2.30b	BMT850	0	Ver	40-60 GHz	Pre scan Max hold EIRP	Yes
2.31a	BH ₅₀	2	Hor	60-75 GHz	Pre scan Max hold EIRP	Yes
2.31b	BH ₅₀	2	Ver	60-75 GHz	Pre scan Max hold EIRP	Yes
2.32a	BT850	1	Hor	60-75 GHz	Pre scan Max hold EIRP	Yes
2.32b	BT850	1	Ver	60-75 GHz	Pre scan Max hold EIRP	Yes
2.33a	BMT850	0	Hor	60-75 GHz	Pre scan Max hold EIRP	Yes
2.33b	BMT850	0	Ver	60-75 GHz	Pre scan Max hold EIRP	Yes
2.34a	BH ₅₀	2	Hor	75-90 GHz	Pre scan Max hold EIRP	Yes
2.34b	BH ₅₀	2	Ver	75-90 GHz	Pre scan Max hold EIRP	Yes
2.35a	BT850	1	Hor	75-90 GHz	Pre scan Max hold EIRP	Yes
2.35b	BT850	1	Ver	75-90 GHz	Pre scan Max hold EIRP	Yes
2.36a	BMT850	0	Hor	75-90 GHz	Pre scan Max hold EIRP	Yes
2.36b	BMT850	0	Ver	75-90 GHz	Pre scan Max hold EIRP	Yes
2.37a	BH ₅₀	2	Hor	90-100 GHz	Pre scan Max hold EIRP	Yes
2.37b	BH ₅₀	2	Ver	90-100 GHz	Pre scan Max hold EIRP	Yes
2.38a	BT850	1	Hor	90-100 GHz	Pre scan Max hold EIRP	Yes
2.38b	BT850	1	Ver	90-100 GHz	Pre scan Max hold EIRP	Yes
2.39a	BMT850	0	Hor	90-100 GHz	Pre scan Max hold EIRP	Yes
2.39b	BMT850	0	Ver	90-100 GHz	Pre scan Max hold EIRP	Yes

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Limits

CFR 47 §30.203 Emission limits.

(a) The conductive power or the total radiated power of any emission outside a licensee's frequency block shall be -13 dBm/MHz or lower. However, in the bands immediately outside and adjacent to the licensee's frequency block, having a bandwidth equal to 10 percent of the channel bandwidth, the conductive power or the total radiated power of any emission shall be -5 dBm/MHz or lower.

(b)(1) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater.

(2) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges as the design permits.

(3) The measurements of emission power can be expressed in peak or average values.

Complies: Tes



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Diagram 2.1a: Pre scan 30 - 1000 MHz, BH₅₀, EIRP Horizontal polarization

Date: 2.JUN.2021 11:10:37

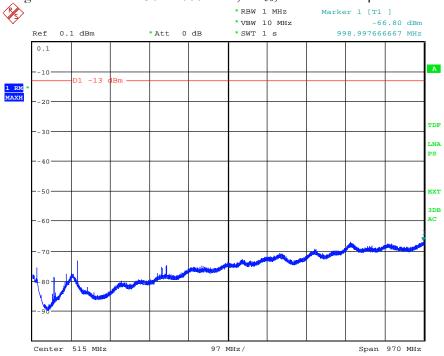


Diagram 2.1b: Pre scan 30 - 1000 MHz, BH₅₀, EIRP Vertical polarization

Date: 2.JUN.2021 11:11:51

Date 2021-06-18 Rev1 2022-04-12 Reference P110766-F30-Rev1

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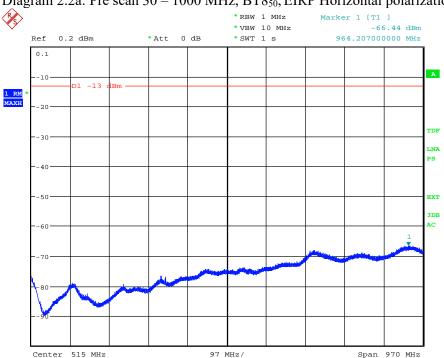


Diagram 2.2a: Pre scan 30 - 1000 MHz, BT850, EIRP Horizontal polarization

Date: 2.JUN.2021 11:18:58

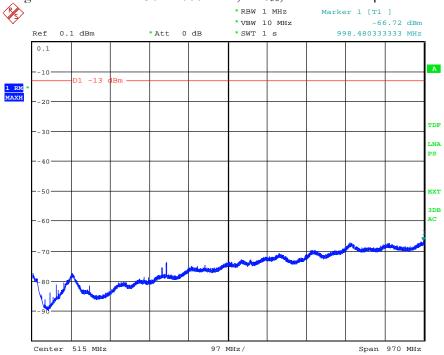


Diagram 2.2b: Pre scan 30 - 1000 MHz, BT850, EIRP Vertical polarization

Date: 2.JUN.2021 11:17:36

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Diagram 2.3a: Pre scan 30 - 1000 MHz, BMT850, EIRP Horizontal polarization

Date: 2.JUN.2021 11:25:24

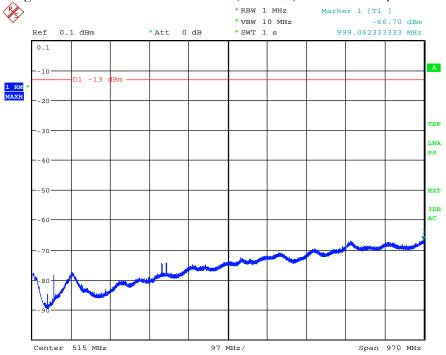


Diagram 2.3b: Pre scan 30 - 1000 MHz, BMT850, EIRP Vertical polarization

Date: 2.JUN.2021 11:27:56

Date 2021-06-18 Rev1 2022-04-12 Reference P110766-F30-Rev1 Page 36 (92)



Diagram 2.4a: Pre scan 1 – 18 GHz, BH₅₀, EIRP Horizontal polarization

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1ultiView 📲 Spect	trum 🔸 🗙 1-	-18GHz X						
Ref Level 20.00 dBm			_					_
Att 10 dB • DF "5M\5322 PL 1-18GHZ		VBW 10 MHz Mode Au	to Sweep					
Frequency Sweep		1			1		Θ	1Rm Max 2Rm Clrw
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	H1 -13.000 dBm							
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C diter								
0 dBm								
0 dBm								
.0 GHz			80001 pts		1.7 GHz/			18.0 GF
Marker Table Type Ref	Trc	X-Value 17.919 36 GHz		Y-Value -22.78 dBm	Function		Function Res	ult
M1	1	17.919 36 GHz		-22.78 dBm	 			
							Measuring	31.05.202 12:21:2

12:21:24 31.05.2021

Diagram 2.4b: Pre scan 1 – 18 GHz, BH₅₀, EIRP Vertical polarization

5M\5322 PL 1-18GH quency Sweep		Diff To hinz Mode Au	to Sweep						
	2.011							0	1Rm Max ⊜2Rm
Sm-									
	H1 -13.000 dBm								
5m									
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Bm									

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Date 2021-06-18 Rev1 2022-04-12 Reference P110766-F30-Rev1 Page 37 (92)



Diagram 2.5a: Pre scan 1 – 18 GHz, BT850, EIRP Horizontal polarization

_						4
ultiView 🎫 Spectrum 🛛 🔸	X 1-18GHz X					
Ref Level 20.00 dBm Offset 20.00						
Att 10 dB • SWT = "5M\5322 PL 1-18GHZ 5M"	1 s • VBW 10 MHz Mode Auto Sweep					
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dBm-						
Bm						
H1 -13.000	dBm					
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1arker Table		N II I	-			
Type Ref Trc M1 1	X-Value 17.847 11 GHz	Y-Value -23.08 dBm	Fur	ction	Function Resu	IIE

13:00:27 31.05.2021

Diagram 2.5b: Pre scan 1 – 18 GHz, BT810, EIRP Vertical polarization

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Date 2021-06-18 Rev1 2022-04-12 Reference P110766-F30-Rev1 Page 38 (92)



Diagram 2.6a: Pre scan 1 – 18 GHz, BMT₅₀, EIRP Horizontal polarization

Diagram	2.00.110.5		0112, D10	1 30 , 1 111	1101120114	ii polulizu			
MultiView 5	ectrum 🔸 🗙 1-	-18GHz X							
Bef Level 20.00 dBn	m Offset 20.00 dB = I								
• Att 10 di	B 🖷 SWT 1 s 🖷 V	VBW 10 MHz Mode Au	to Sweep						
TDF "5M\5322 PL 1-18 1 Frequency Sweep	GHZ 5M"								1Rm Max
I Frequency Sweep								U	
10 dBm									
0 dBm									
-10 dBm	H1 -13.000 dBm								
	11 13,000 000								
-20 dBm									M
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A DESCRIPTION OF THE OWNER.									
-									
-60 dBm									
-70 dBm									
- 70 GBM									
1.0 GHz			80001 pts			1.7 GHz/			18.0 GHz
2 Marker Table Type Ref	f Trc	X-Value		V_Value		Function		Function Res	ult
M1	1	X-Value 17.970 14 GHz		Y-Value -23.14 dBm		1 directori		. anedori ikea	
~								🗸 Measuring	31.05.2021 13:13:30
									13113130

13:13:30 31.05.2021

Diagram 2.6b: Pre scan 1 – 18 GHz, BMT850, EIRP Vertical polarization

equency Sweep								1Rm Max 😑 2Rm (
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See diagram 2.9



Diagram 2.7a: Pre scan 18 – 24 GHz, TimL₅₀, EIRP Horizontal polarization See diagram 2.7c for TRP result MultiView 24-26.5GHz 218-24GHz 2 23.6-24GHz 2 23.6-24GHz 2 23.6-24GHz 2 23.6-24GHz 2 23.6-24GHz 2 24.18-24GHz 2 24.18-24.1

TDF "5M\5322 PL 1	18-24GHZ 5M"								×
1 Frequency Swe	eep								1Rm Max ⊜2Rm Clrw
0 dBm									
								M1 👗	M2 🔌 .
								Ť	
-10 dBm									-
	H1 -13.000 dBm								
-20 dBm									
-30 dBm								enter a del 1000 del 1000 del 1000	
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-60 dBm-									
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-70 dBm-									
-80 dBm									
18.0 GHz			27001 pts		6	00.0 MHz/			24.0 GH;
2 Marker Table									
	Ref Trc	X-Value 22.850 6 GHz 23.488 57 GHz	,	/-Value		Function		Function Res	ult
M1	1	22,850 6 GHz	-7.	/-Value 61 dBm 07 dBm		1 41104011		. anedomites	
M2	1	23.488 57 GHz	-8	07 dBm					
M3	1	23.989 22 GHz	-9.	04 dBm					
									26.05.202
								🗢 Measuring	26.05.202 12:51:5

12:51:53 26.05.2021

Diagram 2.7b: Pre scan 18 - 24 GHz, TimL₅₀, EIRP Vertical polarization See diagram 2.7c for TRP result

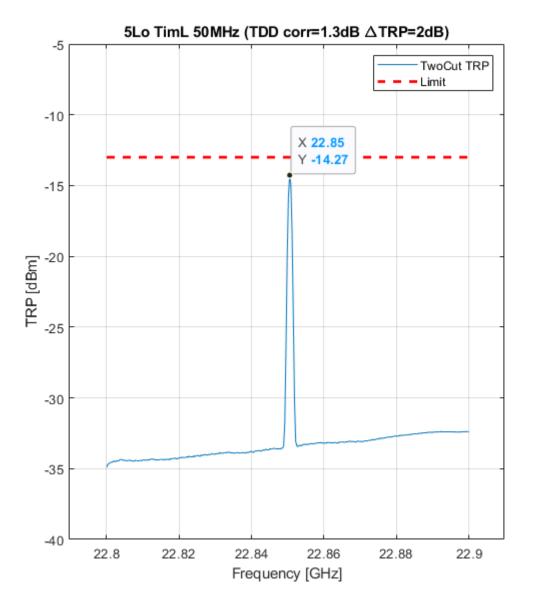
See diagra	m 2.7c for	• TRP resu	ılt					
MultiView 24-	26.5GHz 🔸 🗙 🗄	18-24GHz X	23.6-24GHz	×				
	• SWT 1 s VBW 10		p	_		See diagram	2.8 See	diagram 2.9
TDF "5M\5322 PL 18-24 I Frequency Sweep	GHZ 5M"						•	1Rm Max
							Mi	
d8m-								
10 dBm	H1 -13.000 dBm							-M2
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o usin								
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8.0 GHz			27001 pts		 500.0 MHz/			24.0 GH
Marker Table Type Ref	Trc	X-Value		Y-Value	Function		Function Res	ult
M1 M2 M3	1	22.850 6 GHz 23.488 57 GHz 23.989 22 GHz		-1.27 dBm -13.41 dBm -10.66 dBm	T GHCaOT		- ancuon kes	ure
		201000 22 0112		20100 000			Measuring	26.05.202

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Diagram 2.7c: Two cut TRP 22.8 – 22.9 GHz, Tim L_{50}



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Diagram 2.8a: Pre scan 18 – 24 GHz, BH₅₀, EIRP Horizontal polarization See diagram 2.8c for TRP result

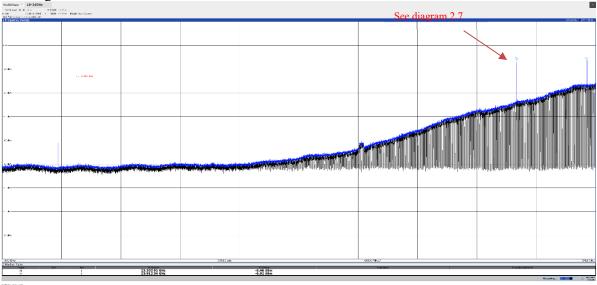
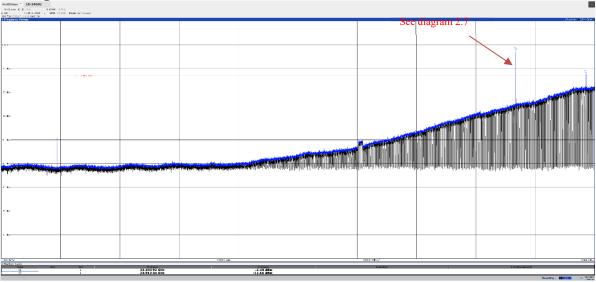


Diagram 2.8b: Pre scan 18 – 24 GHz, BH $_{50},$ EIRP Vertical polarization See diagram 2.8c for TRP result



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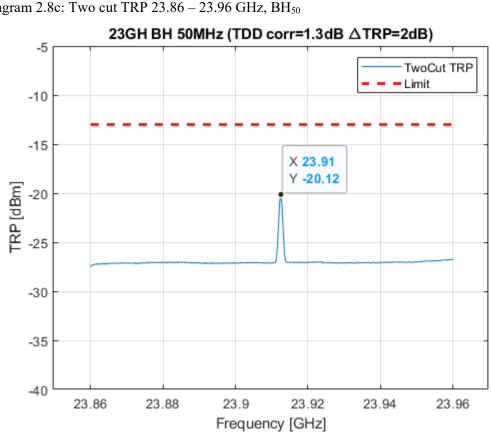


Diagram 2.8c: Two cut TRP 23.86 - 23.96 GHz, BH₅₀

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Diagram 2.9a: Pre scan 18 - 24 GHz, BimL₅₀, EIRP Horizontal polarization See diagram 2.9c for TRP result MultiView 24-26.5GHz 18-24GHz 23.6-24GHz RefLevel 10.00 dbm RBW 1 MHz 23.6-24GHz • Att 10.08 ÷ SWT 1s VBW 10 MHz Mode Auto Sweep TOP⁺ SM5322 R: 16-24GHZ bit VBW 10 MHz Mode Auto Sweep × See diagram 2.7 10 d -H1 -13.000 dBr 18.0 GHz 27001 pts 600.0 MHz/ 24.0 GHz X-Value 22.850 6 GHz 23.488 57 GHz 23.999 89 GHz V-Value -8.23 dBm -7.86 dBm -7.87 dBm M1 M2

13:09:50 26.05.2021

Diagram 2.9b: Pre scan 18 - 24 GHz, BimL₅₀, EIRP Vertical polarization See diagram 2.9c for TRP result

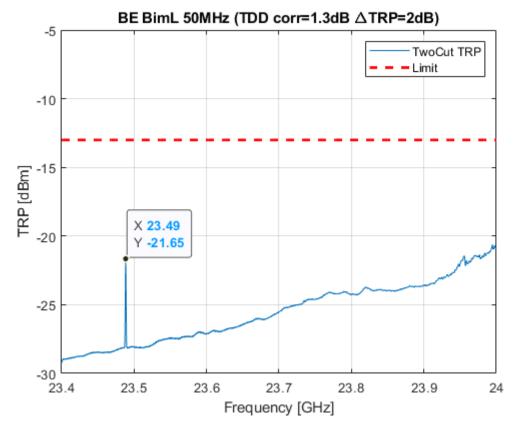
ee alagra	m 2.9c for		23.6-24GHz	×					
RefLevel 10.00 dBm Att 10 dB	• RBW 11 • SWT 1s VBW 10	/Hz				See diagram	2.7		
DF "5M\5322 PL 18-24 Frequency Sweep	4GHZ 5M"							0	1Rm Max ⊜2Rm Clrw
dBm-								M1	
0 dBm									M2
	H1 -13.000 dBm								
to dBm									
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70 dBm									
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o ubin									
8.0 GHz			27001 pt			500.0 MHz/			24.0 GF
Marker Table			27001 pt	5		500.0 MH2/			24.0 Gr
Type Ref	Trc	X-Value		Y-Value		Function		Function Res	ult
M1 M2	1	22.850 6 GHz 23.488 57 GHz		-1.41 dBm -12.88 dBm					
M3	î	23.999 89 GHz		-9.80 dBm					
~								Measuring	26.05.20

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Diagram 2.9c: Two cut TRP 23.4 – 24 GHz, BimL₅₀



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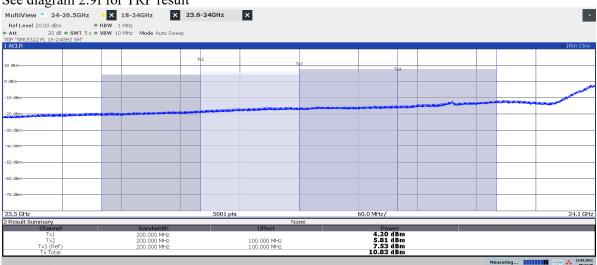
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Diagram 2.9d: Pre scan Channel power 200MHz 23.6 – 24 GHz, $Bim L_{50}, EIRP$ Horizontal polarization



Diagram 2.9e: Pre scan Channel power 200MHz 23.6 – 24 GHz, BimL $_{50}$, EIRP Vertical polarization See diagram 2.9f for TRP result



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Date 2021-06-18 Rev1 2022-04-12 Reference P110766-F30-Rev1

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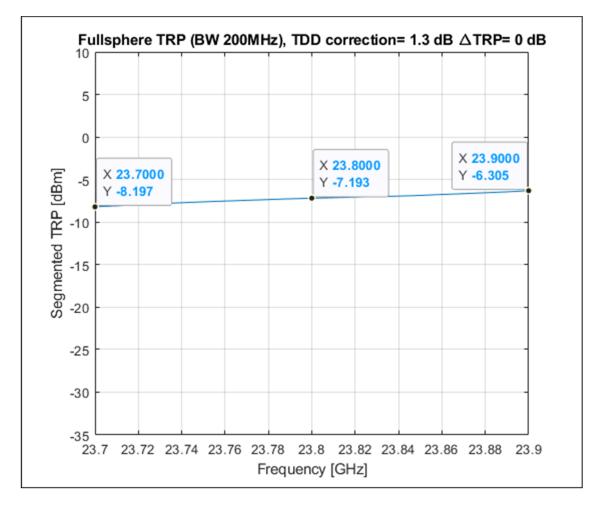


Diagram 2.9f: Spherical grid Method TRP Channel power 200MHz 23.6 – 24 GHz, BimL₅₀

Proposed rule change in FR Document Number: 2021-10536, Table 1—WRC-19 Resolution 750 Unwanted Emissions Permitted Within Any 200 Megahertz in the 23.6-24 GHz Passive Band

Freq [GHz]	Power TRP [dBW] Channel power 200MHz	Current TRP limit IMT Base Stations [dBW]
23.7	-38.197	-33
23.8	-37.193	-33
23.9	-36.305	-33

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600.0 MHz/

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24.0 GHz

Diagram 2.10a: Pre scan 18 - 24 GHz, BT850, EIRP Horizontal polarization MultiView = 24-26.5GHz * X 18-24GHz X 23.6-24GHz X Ref Level 10.00 dBm RBW 1 MHz Att 10 dB SWT 1 s VBW 10 MHz Mode Auto Sweep TDF SMK5322 PL 18-24GHZ SM* Image: Sweep Image: See diagram 2.8 See diagram 2.7 10 -H1 -13.000 dBm 40 dE

Y-Value -13.58 dBm -13.27 dBm -12.94 dBm

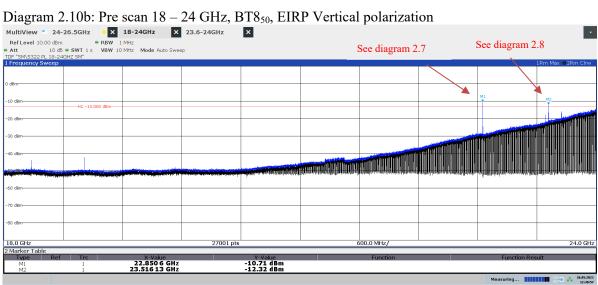
12:33:44 26.05.2021

M1 M2 M3

18.0 GHz

27001 pts

X-Value 22.850 6 GHz 23.488 57 GHz 23.516 13 GHz



12:30:58 26.05.2021

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Diagram 2.11a: Pre scan 18 - 24 GHz, BMT850, EIRP Horizontal polarization

MultiView 24	1-26.5GHz 😽 🗙	18-24GHz X	23.6-24GHz 👌	×					-
Ref Level 10.00 dB						See diagram 2	7		
Att 10 o TDF "5M\5322 PL 18-2	24GHZ 5M1 1 s VBW 10 24GHZ 5M1	MHz Mode Auto Sweep	>						
1 Frequency Sweep	н. <u></u>						×	0	1Rm Max 😐 2Rm Clrw
0 dBm									
							X .	a 1	
-10 dBm-								MO M	3 M4 M5
	H1 -13.000 dBm							Ť	
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-30 dBm-									
-40 dBm									
- Crowleth and the later	1 June								
and the second se	a and a second secon	a service of the serv		and with the second second second	an a	ar fisik fin son at som ste flir besom hvad	nen den als sen av det albertiker sinde	an de la fair de la comparación de la compacta de l	efikti hari matati da kara sa sa kara da
-60 dBm									
70 dBm									
-80 dBm									
18.0 GHz			27001 pts			500.0 MHz/	I		24.0 GHz
2 Marker Table									
Type Re M1	f Trc	X-Value 22.809 71 GHz		Y-Value -10.23 dBm		Function		Function Res	ult
M2	1	23.224 14 GHz		-16.19 dBm					
M3	1	23.393 02 GHz		-15.10 dBm					
M4 M5	1	23.562 35 GHz 23.937 22 GHz		-15.19 dBm -13.21 dBm					
	*							Measuring	26.05.2021 12:22:55

12:22:56 26.05.2021

Diagram 2.11b: Pre scan 18 - 24 GHz, BMT850, EIRP Vertical polarization

MultiView 24-	-26.5GHz 🔸 🗙	18-24GHz X	23.6-24GHz 👌	×					
Ref Level 10.00 dBm									
 Att 10 dB TDF "5M\5322 PL 18-24 	• SWT 1 s VBW 10	MHz Mode Auto Swee	^{sp}						
1 Frequency Sweep	RGMZ SIM							Θ	1Rm Max e2Rm Clrw
0 dBm									
-10 dBm	H1 -13.000 dBm							M2 M2	2 M4 M5
-20 dBm-									T
-30 dBm									
-40 dBm									
-Badstation	L. Lunder								
and a second	and the second se	and a set of the print and a set of a	and a short black a second state of the	addition to a state of a	1. 1		and the second	- Manifestration of Association of	
-60 dBm									
-70 dBm									
-80 dBm									
18.0 GHz			27001 pts		6	00.0 MHz/			24.0 GHz
2 Marker Table Type Ref	Trc	X-Value		Y-Value		Function		Function Res	ult
M1	1	22.809 71 GHz		-13.72 dBm					
M2 M3	1	23.224 14 GHz 23.393 02 GHz		-14.45 dBm -18.17 dBm					
M4 M5	1	23.562 35 GHz 23.937 22 GHz		-17.71 dBm -17.35 dBm					
- mu	1	201007 22 0112		-27100 0011				- Managarian	26.05.2021

12:24:50 26.05.2021



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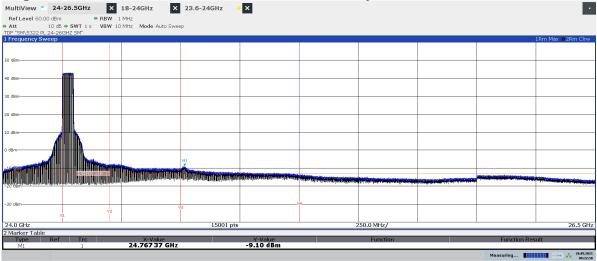


MultiView 24-26.5GHz X 18-24GHz X 23.6-24GHz X • Ref Level 60.00 dBm RBW 1 MHz • Att 10 dB • SWT 1 s VBW 10 MHz Mode Auto Sweep TDF "5M(5322 PL 24-26GHz SM" 1 Trequency Sweep 50 de 24.0 GHz 15001 pts 250.0 MHz/ 26.5 GHz X-Value 24.7657 GHz Y-Value -7.71 dBm

Diagram 2.12a: Pre scan 24 – 26.5 GHz, BL₅₀, EIRP Horizontal polarization

09:09:00 26.05.2021

Diagram 2.12b: Pre scan 24 – 26.5 GHz, BL₅₀, EIRP Vertical polarization



09:12:10 26.05.2021

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Diagram 2.12c: 24 - 24.25 GHz, QPSK, BL₅₀, EIRP Horizontal polarization

F "5M\5322 PL 24-2 Frequency Sweep	0012 011				01Rm
equency sweep					0 IRII
Bm					
8m					
Bm			 		
m					
m					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
n					and the second s
			Lun martin	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
BID	H1 -13.000 dBm	 and the second			
	11 10,000 00.0				
IBm					
lBm					
18m			 +		
4.125 GHz		5001 pts	25.0 MHz/		Span 250.0
irker Table					

15:14:03 24.05.2021

Diagram 2.12d: 24 - 24.25 GHz, QPSK, BL₅₀, EIRP Vertical polarization

ef Level 55.00 dBm Offset 1.30 dB ● I tt 10 dB ● SWT 100 ms ' "5M\5322 PL 24-26GHZ 5M"	VBW 10 MHz Mode Auto Swee	ep		Count	100/100
requency Sweep					≎1Rm A
IBm					
IBm					
IBm					
8m-					
m					
m					~
IBm				 ~~~~	
H1 -13.000 dBm					
DIT					
dBm					
dBm-					
0 GHz		1001 pts	25.0 MHz/		24.25
Image: Second state Compare Se	X-Value 24.25 GHz 24.245 GHz	Y-Value 14.77 dBm 9.45 dBm	Function	Function Res	ult

10:44:26 24.05.2021

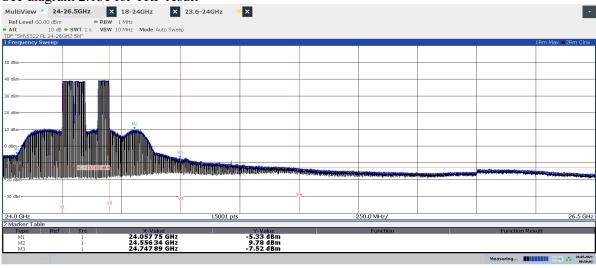
Power EIRP for 24.25 GHz Hor/ Ver [dBm]	Power EIRP for 24.245 GHz Hor/ Ver [dBm]	Antenna Gain Hor/ Ver [dBi]	Total conducted power/BW for 24.25 GHz (Limit -5 dBm) [dBm]/ Verdict	Total conducted power/BW for 24.245 GHz (Limit -13 dBm) [dBm]/ Verdict
16.48/ 14.77	8.67/ 9.45	30.88/ 30.69	-12.08/ Pass	-18.08/ Pass

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Reference P110766-F30-Rev1 Page 51 (92)

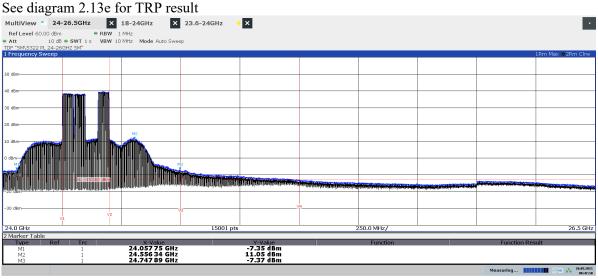


Diagram 2.13a: Pre scan 24 – 26.5 GHz, BimL₅₀, EIRP Horizontal polarization See diagram 2.13e for TRP result



08:50:02 26.05.2021

Diagram 2.13b: Pre scan 24 – 26.5 GHz, BimL₅₀, EIRP Vertical polarization



08:47:11 26.05.2021

Freq [GHz]	Power Hor/ Ver [dBm]	Antenna Gain Hor/ Ver [dBi]	Total conducted power/BW (Limit -13 dBm) [dBm]/ Verdict
24.556	9.78/ 11.05	30.88/ 30.77	-17.35/ Pass

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Diagram 2.13c: 24 - 24.25 GHz, QPSK, BimL₅₀, EIRP Horizontal polarization See diagram 2.13e for TRP result

tiView 24-26-5GHz		BL Be 100 X TL B	e100 🗙 BH Be100	X TH Be100	×				
	n Offset 1.30 dB 🖷 R							SGL	
.tt 10 di = "5M\5322 PL 24-20	3 🖶 SWT 100 ms V	BW 10 MHz Mode Aut	o Sweep					Count	100/100
requency Sweep	33HZ 3M								o 1Rm A
d8m-									
dBm									
dBm-									
dBm									
dBm						and the second s	Automation and the second	Annon marine	
				mannen					* ***
9m			monthe						
	man								
) dBm	H1 -13.000 dBm								
	112 13,000 000								
) dBm-									
) dBm-									
) dBm									
I.0 GHz	1	1	5001 pts		1	25.0 MHz/		1	24.25 0
Aarker Table									2.120 (
Type Ref	Trc	X-Value 24.25 GHz		Y-Value		Function		Function Res	ult
M1 M2	1	24.25 GHz 24.245 GHz		11.66 dBm 6.34 dBm					
11144	*								D.T 24.05.

15:51:43 24.05.2021

Diagram 2.13d: 24 – 24.25 GHz, QPSK, BimL₅₀, EIRP Vertical polarization See diagram 2.13e for TRP result

ultiView 24-26.5GHz	× P mitt	X BL Be 100 X	TL Be100	X BH Be100	X TH Be100	×				
Ref Level 55.00 dBm	Offset 1.30 dB •	RBW 1 MHz	•	_	_	_			SGL	_
	 SWT 100 ms 	VBW 10 MHz Mod	e Auto Sweep						Count	100/100
DF "5M\5322 PL 24-26 Frequency Sweep	GHZ SM"									●1Rm Avg
) dBm										
) dBm										
0 dBm										
0 d8m										
o dom										
D dBm										M2
o ubin					······	· ·····		· · · · · · · · · · · · · · · · · · ·		monto
d9m-				mon						
			manne							
tu dam		manner								
	H1 -13.000 dBm									
20 dBm										
30 dBm										
40 dBm										
24.0 GHz	1			5001 pts		1	25.0 MHz/			24.25 GH
Marker Table										
Type Ref	Trc	X-Value 24.25 G	1-		Y-Value 12.26 dBm		Function		Function Res	ult
M1 M2	1	24.25 G	12		8.06 dBm					

17:06:56 24.05.2021

Power EIRP for 24.25 GHz Hor/ Ver [dBm]	Power EIRP for 24.245 GHz Hor/ Ver [dBm]	Antenna Gain Hor/ Ver [dBi]	Total conducted power/BW for 24.25 GHz (Limit -5 dBm) [dBm]/ Verdict	Total conducted power/BW for 24.245 GHz (Limit -13 dBm) [dBm]/ Verdict
11.66/ 12.26	6.34/ 8.06	30.88/ 30.69	-15.80/ Pass	-20.47/ Pass

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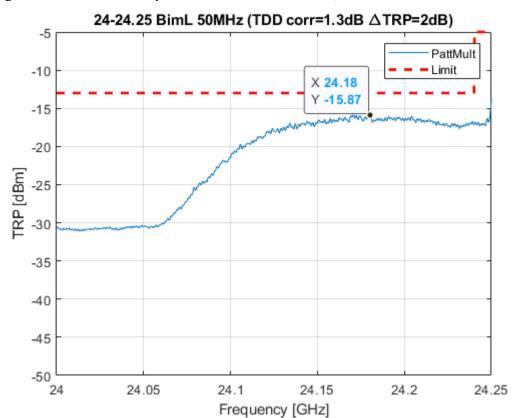


Diagram 2.13e: Pattern multiplication TRP 24 – 24.25 GHz, BimL₅₀



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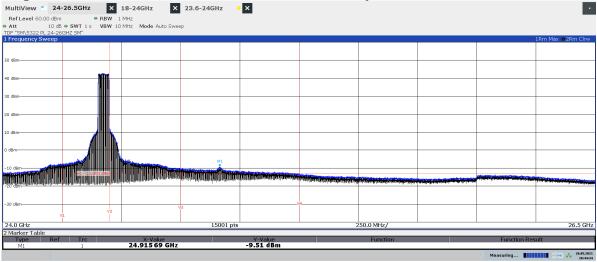


MultiView 24-26.5GHz X 18-24GHz X 23.6-24GHz X • Att 10d = SWT is VBW 10 MHz Mode Auto Sweep TDF "SM(5322 PL 24-260HZ SM") Frequency Sweep Frequency Sweep 50 de 24.0 GHz Marker 15001 pts 250.0 MHz/ 26.5 GHz X-Value 24.91536 GHz Y-Value -7.54 dBm

Diagram 2.14a: Pre scan 24 – 26.5 GHz, TL₅₀, EIRP Horizontal polarization

10:41:37 26.05.2021

Diagram 2.14b: Pre scan 24 – 26.5 GHz, TL₅₀, EIRP Vertical polarization



10:44:34 26.05.2021

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•

25.4 GHz



Diagram 2.14c: 24.45 – 25.4 GHz, QPSK, TL₅₀, EIRP Horizontal polarization SGL Count 100/100 40 dBr D di

dB -10 -20 d 30 (40 dB 95.0 MHz/ 24.45 GHz 5001 pts X-Value 24.45 GHz 24.455 GHz 24.916 45 GHz Y-Value 14.81 dBm 9.67 dBm -8.59 dBm M1 M2 M3 15:09:59 24.05.2021

Diagram 2 14d: 24 45 - 25 4 GHz OPSK TL • FIRP Vertical polarization

iM\5322 PL 24-26GHZ 5M"	VBW 10 MHz Mode Auto Sweep				Count 10	
quency Sweep						01Rm
\						
human						
H1 -13.000 dBm		and the second				
n						
n						
n						
GHz		5001 pts	95.0 MHz/			25.
ker Table		3001 pts	95.0 MH27			23.
ype Ref Trc	X-Value	Y-Value	Functi	on	Function Result	

14:02:19	24.05.2021

Power EIRP for 24.45 GHz Hor/ Ver [dBm]	Power EIRP for 24.455 GHz Hor/ Ver [dBm]	Antenna Gain Hor/ Ver [dBi]	Total conducted power/BW for 24.45 GHz (Limit -5 dBm) [dBm]/ Verdict	Total conducted power/BW for 24.455 GHz (Limit -13 dBm) [dBm]/ Verdict
14.81/ 12.97	9.67/ 8.19	30.88/ 30.77	-13.84/ Pass	-18.83/ Pass

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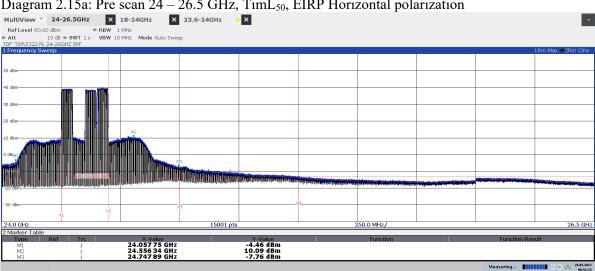
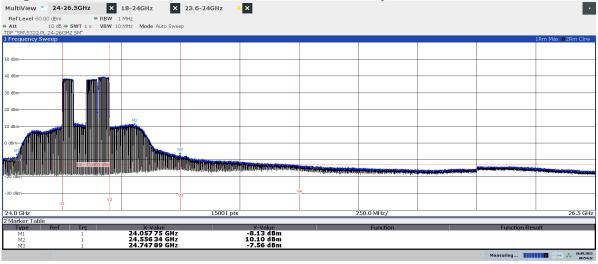


Diagram 2.15a: Pre scan 24 – 26.5 GHz, TimL₅₀, EIRP Horizontal polarization

08:52:16 26.05.2021

Diagram 2.15b: Pre scan 24 – 26.5 GHz, TimL₅₀, EIRP Vertical polarization



08:54:32 26.05.2021

Freq [GHz]	Power Hor/ Ver [dBm]	Antenna Gain Hor/ Ver [dBi]	Total conducted power/BW (Limit -13 dBm) [dBm]/ Verdict
24.556	10.09/ 10.10	30.88/ 30.77	-18.83/ Pass

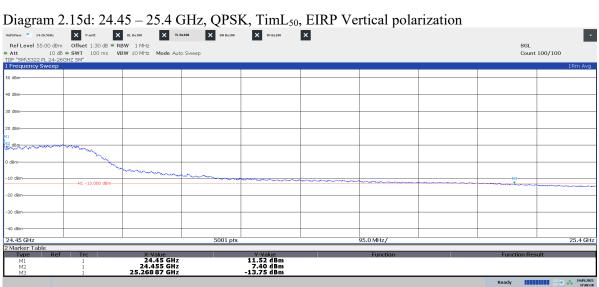
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Diagram 2.15c: 24.45 – 25.4 GHz, QPSK, TimL₅₀, EIRP Horizontal polarization • Level 55.00 dBm Offset 1.30 dB • RBW 1 MHz 10 dB • SWT 100 ms VBW 10 MHz Mode Auto Sweep Ref Level 55.00 dBm SGL Count 100/100 Att 40 dBr 👌 dBm l dBr МЗ -10 -H1 -13.000 dB 20 d 40 dB 95.0 MHz/ 24.45 GHz 5001 pts 25.4 GHz X-Value 24.45 GHz 24.455 GHz 24.962 99 GHz Y-Value 11.59 dBm 5.97 dBm -9.52 dBm M1 M2 M3

15:57:38 24.05.2021



17:02:18 24.05.2021

Power EIRP for 24.45 GHz Hor/ Ver [dBm]	Power EIRP for 24.445 GHz Hor/ Ver [dBm]	Antenna Gain Hor/ Ver [dBi]	Total conducted power/BW for 24.45 GHz (Limit -5 dBm) [dBm]/ Verdict	Total conducted power/BW for 24.455 GHz (Limit -13 dBm) [dBm]/ Verdict
11.59/ 11.52	5.97/ 7.40	30.88/ 30.77	-16.26/ Pass	-21.06/ Pass

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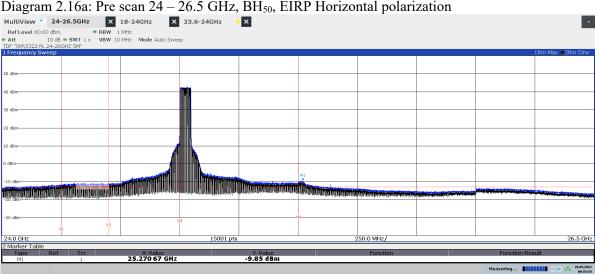
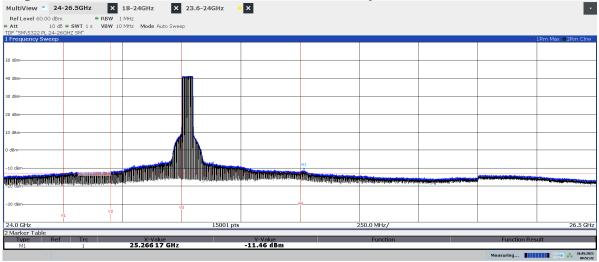


Diagram 2.16a: Pre scan 24 – 26.5 GHz, BH₅₀, EIRP Horizontal polarization

Diagram 2.16b: Pre scan 24 – 26.5 GHz, BH₅₀, EIRP Vertical polarization



09:52:33 26.05.2021

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Diagram 2.16c: 24 – 24.75 GHz, QPSK, BH₅₀, EIRP Horizontal polarization

tultiView 24-26.5GHz	× P mitt	X BL Be100 X	TL Be100 X BH Be100	X TH Be100	×			
	n Offset 1.30 dE B = SWT 100 m			_	_		SGL Count	100/100
DF "5M\5322 PL 24-2 Frequency Sweep	6GHZ 5M"							o 1Rm Ave
Trequency Sweep								O TRUE MY
0 dBm								
0 dBm								
) upm								
0 dBm								
0 dBm								
0 dBm								~~~
dBm								
Gen								name
10 dBm						a souther the second second	 m	
	H113.000 de	Bmanara						
20 dBm								
30 dBm	1		-					
40 dBm								
			5004					0.1.75.01
4.0 GHz Marker Table			5001 pts			75.0 MHz/		24.75 GI
Type Ref	Trc	X-Value		Y-Value		Function	Function Res	ult
M1 M2	1	X-Value 24.75 GHz 24.745 GHz		Y-Value 15.66 dBm 10.35 dBm				
1912	*	24.745 0112		20100 0011			- Decada	24.05.20
· · · ·							 Ready 	24.05.2

15:06:13 24.05.2021

Diagram 2.16d: 24 – 24.75 GHz, QPSK, BH₅₀, EIRP Vertical polarization

fLevel 55.00 dBm Offset 1 10 dB = SWT 1	00 ms VBW 10 MHz Mode Auto Swe	ap			GL Count 100/100
'5M\5322 PL 24-26GHZ 5M" equency Sweep					01Rm
					0.11411
m					
m					
n					
m					
m					
m					
					- L
1					
Bm					mon
H1 -13.	000 d8m				
Bm					
Bm					
Bm					
) GHz		5001 pts	75.0 MHz/		24.75
rker Table Type Ref Trc	V V-h	Y-Value	Function	Europhian	Denult
Type Ref Trc M1 1	X-Value 24.75 GHz	Y-Value 12.68 dBm 8.80 dBm	Function	Function	Result

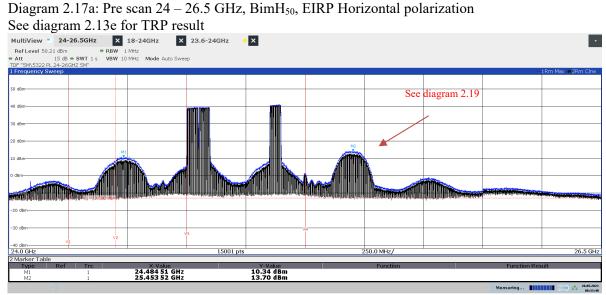
14:31:56 24.05.2021

Power EIRP for 24.75 GHz Hor/ Ver [dBm]	Power EIRP for 24.745 GHz Hor/ Ver [dBm]	Antenna Gain Hor/ Ver [dBi]	Total conducted power/BW for 24.75 GHz (Limit -5 dBm) [dBm]/ Verdict	Total conducted power/BW for 24.745 GHz (Limit -13 dBm) [dBm]/ Verdict
15.66/ 12.68	10.35/ 8.80	31.05/ 31.00	-13.60/ Pass	-18.38/ Pass

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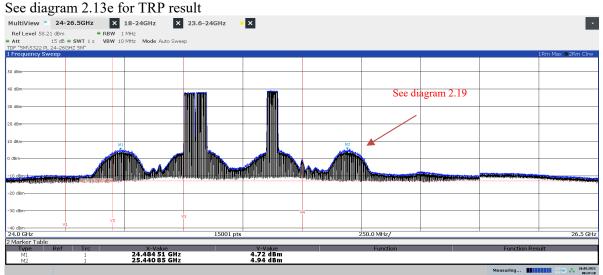
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08:33:41 26.05.2021

Diagram 2.17b: Pre scan 24 - 26.5 GHz, BimH₅₀, EIRP Vertical polarization



08:37:10 26.05.2021

Freq [GHz]	Power Hor/ Ver [dBm]	Antenna Gain Hor/ Ver [dBi]	Total conducted power/BW (Limit -13 dBm) [dBm]/ Verdict
24.484	10.34/ 4.94	30.88/ 30.77	-19.41/ Pass

Date 2021-06-18 Rev1 2022-04-12 Reference P110766-F30-Rev1

75.0 MHz/

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•

24.75 GHz



See diagram 2.13e for TRP result
 Nutritive
 2+25.556
 X
 Peakt
 X
 IL. Be100
 X
 IL. Be100

 Att
 10.06
 SWT
 10.06
 SWT
 10.HHz

 Att
 10.06
 SWT
 100 ms
 VBW 10.MHz
 Mode Auto Sweep

 DF "SMI_5322 PL_24-26GHZ SM"
 SMI
 24.4
 SMI
 SMI
 SMI
 X BH Be 100 X TH Be 100 X SGL Count 100/100 50 dBm 40 d 30 de LO dB 20 df 30 c

V-Value 10.10 dBm 4.91 dBm -5.41 dBm

Diagram 2.17c: 24 - 24.75 GHz, QPSK, BimH₅₀, EIRP Horizontal polarization

16:06:32 24.05.2021

M1 M2

24.0 GH

Diagram 2.17d: 24 – 24.75 GHz, QPSK, BimH₅₀, EIRP Vertical polarization

5001 pts

X-Value 24.75 GHz 24.745 GHz 24.090 51 GHz

	m Offset 1.30 dB 🖷 P			TH Be100			SGL	
10 d M\5322 PL 24-2		BW 10 MHz Mode Auto Swee	2				Count	100/100
juency Sweep	T							01Rr
								i i
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	мз			munt		1 m	$\sim \wedge <$	r.
	H1 -13.000 dBm							
		1						i i
								i i
								i i
	1						1	t
Hz	1		5001 pts		75.0 MHz/	1		24.7
er Table					-/			
pe Re	f Trc	X-Value	Y-V	alue	Function		Function Res	ult
M1	1	24.75 GHz 24.745 GHz	8.4	5 dBm 9 dBm				

16:46:32 24.05.2021

Power EIRP for 24.75 GHz Hor/ Ver [dBm]	Power EIRP for 24.745 GHz Hor/ Ver [dBm]	Antenna Gain Hor/ Ver [dBi]	Total conducted power/BW for 24.75 GHz (Limit -5 dBm) [dBm]/ Verdict	Total conducted power/BW for 24.745 GHz (Limit -13 dBm) [dBm]/ Verdict
10.10/ 8.45	4.91/ 4.39	31.05/ 31.00	-18.67/ Pass	-23.36/ Pass

Date 2021-06-18 Rev1 2022-04-12 Reference P110766-F30-Rev1

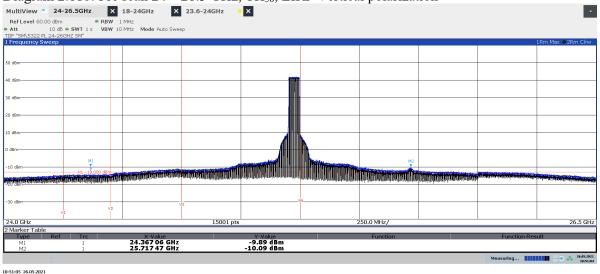
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Diagram 2.18a: Pre scan 24 - 26.5 GHz, TH₅₀, EIRP Horizontal polarization MultiView 24-26.5GHz X 18-24GHz X 23.6-24GHz X • Ref Level 60.00 dBm RBW 1 MHz • Att 10 dB • SWT 1 s VBW 10 MHz Mode Auto Sweep TDF "SM/5322 PL 24-26GHZ SM" Image: Comparison of the second secon 50 di 24.0 GHz 15001 pts 250.0 MHz/ 26.5 GHz 24.367 06 GHz 25.717 47 GHz -5.80 dBm -9.99 dBm M1 M2

10:54:33 26.05.2021

Diagram 2.18b: Pre scan 24 – 26.5 GHz, TH₅₀, EIRP Vertical polarization



Total conducted Power Antenna Gain power/BW (Limit Freq Hor/ Ver Hor/ Ver [GHz] -13 dBm) [dBm] [dBi] [dBm]/ Verdict 24.367 -5.80/ -9.89 30.88/ 30.77 -35.22/ Pass

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Diagram 2.18c: 25.25 – 26.5 GHz, QPSK, TH₅₀, EIRP Horizontal polarization • SGL Count 100/100 40 dB -H1 -13.000 dBm 20 (40 dB 125.0 MHz/ 6001 pts 26.5 GHz 25.25 GH X-Value 25.25 GHz 25.255 GHz 25.841 67 GHz Y-Value 13.98 dBm 6.94 dBm -11.24 dBm M1 M2 M3

15:00:10 24.05.2021

Diagram 2.18d: 25.25 – 26.5 GHz, OPSK, TH₅₀, EIRP Vertical polarization

	m Offset 1.30 dB ● F B ● SWT 100 ms N	RBW 10 MHz Mode Auto Si	weep					SGL Count	100/100
= "5M\5322 PL 24-2	6GHZ 5M"								
Frequency Sweep					1		1		01Rm A
dBm									
									1
dBm									1
dBm									1
ubm									
d8m									
									1
dBm									i
\mathbf{N}									1
met									
0 dBm									
	H1 -13.000 dBm			ومادي معرود أراحي المادعية ومراجعة ومارجعها الماد والمراجع					
D dBm									
									1
0 dBm									
) dBm									
5.25 GHz			6001 pts			125.0 MHz/			26.5 0
Aarker Table			5001 pts			123.0 MICZ/			20.3 0
Type Ref	f Trc	X-Value 25.25 GHz		Y-Value 12.13 dBm		Function		Function Res	ult
M1 M2	1	25.255 GHz		6.63 dBm					

14:54:54 24.05.2021

Power EIRP for 25.25 GHz Hor/ Ver [dBm]	Power EIRP for 25.255 GHz Hor/ Ver [dBm]	Antenna Gain Hor/ Ver [dBi]	Total conducted power/BW for 25.25 GHz (Limit -5 dBm) [dBm]/ Verdict	Total conducted power/BW for 25.255 GHz (Limit -13 dBm) [dBm]/ Verdict
13.98/ 12.13	6.94/ 6.63	31.23/ 31.27	-15.08/ Pass	-21.45/ Pass

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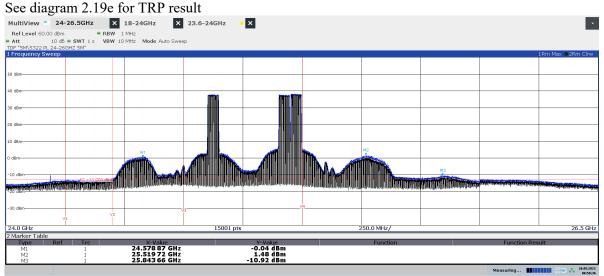
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Diagram 2.19a: Pre scan 24 – 26.5 GHz, TimH₅₀, EIRP Horizontal polarization See diagram 2.19e for TRP result MultiView ² 4-26.5GHz <u>18-24GHz</u> <u>23.6-24GHz</u> <u>23.6-24GHz</u> <u>18-24GHz</u> <u>23.6-24GHz</u> <u>24.26GHz</u> <u>25.559 48 GHz</u> <u>4.258 78 GHz</u> <u>4.258 GHz</u> <u>4.258 GHz</u> <u>4.258 GHz</u> <u>4.258 78 GHz</u> <u>4.258 GHz</u> <u>4.358 GHz</u>

09:01:38 26.05.2021

Diagram 2.19b: Pre scan 24 – 26.5 GHz, TimH₅₀, EIRP Vertical polarization



08:58:36 26.05.2021

Freq [GHz]	Power Hor/ Ver [dBm]	Antenna Gain Hor/ Ver [dBi]	Total conducted power/BW (Limit -13 dBm) [dBm]/ Verdict
24.588	4.86/-0.04	30.88/ 30.77	-24.78/ Pass

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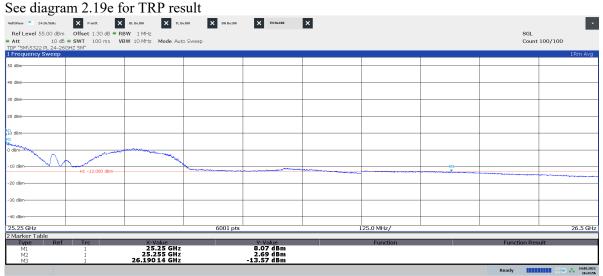


Diagram 2.19c: 25.25 - 26.5 GHz, QPSK, TimH₅₀, EIRP Horizontal polarization See diagram 2.19e for TRP result
 Zericola
 X
 Parett
 X
 It. De 100
 X
 T. De 100

 Ref Level 55:00 dBm
 Offset 1.30 dB
 PABW
 1 MHz
 It. De 100
 X BH Be100 X TH Be100 X SGL Count 100/100 50 dBn 10 c 6001 pts 125.0 MHz/ 26.5 GHz 25.25 GHz 11.18 dBm 5.21 dBm -14.08 dBm 25.25 GHz 25.255 GHz 26.290 14 GHz M1 M2

16:24:38 24.05.2021

Diagram 2.19d: 25.25 – 26.5 GHz, QPSK, TimH₅₀, EIRP Vertical polarization



16:33:56 24.05.2021

Power EIRP for 25.25 GHz Hor/ Ver [dBm]	Power EIRP for 25.255 GHz Hor/ Ver [dBm]	Antenna Gain Hor/ Ver [dBi]	Total conducted power/BW for 25.25 GHz (Limit -5 dBm) [dBm]/ Verdict	Total conducted power/BW for 25.255 GHz (Limit -13 dBm) [dBm]/ Verdict
11.18/ 8.07	5.21/ 2.69	31.23/ 31.27	-18.34/ Pass	-24.10/ Pass

-40

-45

-50 -25.2

25.3

25.4

25.5

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Diagram 2.19e: Pattern multiplication TRP 25.25 – 26.2 GHz, TimH₅₀ BE TimH 50MHz (TDD corr=1.3dB \triangle TRP=2dB) -5 -10 -5 -10 -15 -20 -25 -30 -35

25.6

25.7

Frequency [GHz]

25.8

25.9

26

26.1

26.2



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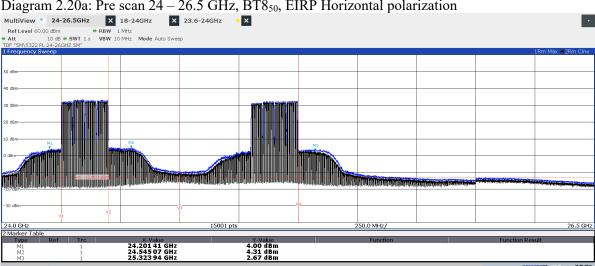
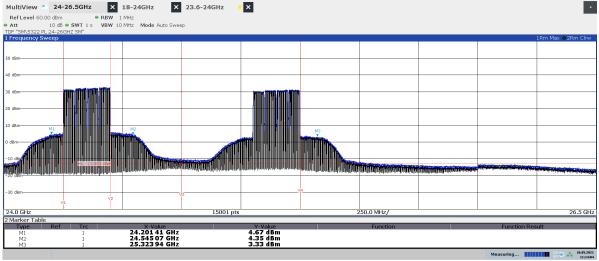


Diagram 2.20a: Pre scan 24 – 26.5 GHz, BT850, EIRP Horizontal polarization

11:10:45 26.05.2021

Diagram 2.20b: Pre scan 24 – 26.5 GHz, BT8₅₀, EIRP Vertical polarization



11:14:04 26.05.2021

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Diagram 2.20c: 24 - 24.25 GHz, QPSK, BT850, EIRP Horizontal polarization

MultiView 24-26.5GHz	X P mitt X	BL Be 100 X TL B	e100 🗙 BH Be100	X TH Be100	×				•
Ref Level 55.00 dBm	Offset 1.30 dB 🖷 R	BW 1 MHz						SGL	
		BW 10 MHz Mode Aut	o Sweep					Count	100/100
TDF "5M\5322 PL 24-26 1 Frequency Sweep	GHZ 5M"								o1Rm Avg
50 dBm									
40 dBm									
30 dBm									
20 dBm									
10 dBm									M1
									M2
0 dem-									
-10 dBm	H1 -13.000 dBm		and a state of the						
-20 dBm									
-30 dBm									
-40 dBm									Vi
24.0 GHz	1	1	5001 pts		1	25.0 MHz/	1	1	24.25 GHz
2 Marker Table									
Type Ref M1 M2	1 1	X-Value 24.25 GHz 24.245 GHz		Y-Value 6.22 dBm 3.80 dBm		Function		Function Res	ult
~								Ready	25.05.2021

09:46:38 25.05.2021

Diagram 2.20d: 24 – 24.25 GHz, QPSK, BT850, EIRP Vertical polarization

ef Level 55.00 dBm Offset 1.3 tt 10 dB = SWT 10	su dB ➡ RBW 1 MHZ 10 ms VBW 10 MHz Mode Auto Swe	ep		SGL Count 100/100
"5M\5322 PL 24-26GHZ 5M"				
requency Sweep				∘1Rm A
dBm				
8m-				
Bm				
511				
8m				
Bm				N
m				 immen and the second
dBm-				
H1 -13.0	00-d8m			
dBm				
dBm				
dBm-				
0 GHz		5001 pts	25.0 MHz/	24.25
arker Table		5001 pts	23.0 MH27	24.23
Type Ref Trc	X-Value	Y-Value	Function	Function Result
M1 1 M2 1	24.25 GHz 24.245 GHz	6.71 dBm 3.54 dBm		

09:39:35 25.05.2021

Power EIRP for 24.25 GHz Hor/ Ver [dBm]	Power EIRP for 24.245 GHz Hor/ Ver [dBm]	Antenna Gain Hor/ Ver [dBi]	Total conducted power/BW for 24.25 GHz (Limit -5 dBm) [dBm]/ Verdict	Total conducted power/BW for 24.245 GHz (Limit -13 dBm) [dBm]/ Verdict
6.22/ 6.71	3.80/ 3.54	28.01/28.03	-18.54/ Pass	-21.34/ Pass

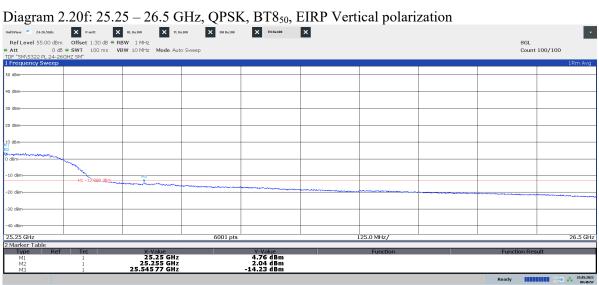
Date 2021-06-18 Rev1 2022-04-12 Reference P110766-F30-Rev1

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Diagram 2.20e: 25.25 – 26.5 GHz, QPSK, BT8₅₀, EIRP Horizontal polarization • Level 55.00 dBm Offset 1.30 dB * RBW 1 MHz 0 dB * SWT 100 ms VBW 10 MHz Mode Auto Sweep 15322 PL 24-26GHZ SMT Ref Level 55.00 dBm SGL Count 100/100 Att 40 dBr 30 di dBm -10 20 d 40 dB 125.0 MHz/ 25.25 GHz 6001 pts 26.5 GHz X-Value 25.25 GHz 25.255 GHz 25.545 77 GHz Y-Value 4.31 dBm 1.50 dBm -14.31 dBm M1 M2 M3

09:47:43 25.05.2021



09:40:57 25.05.2021

Power EIRP for 25.25 GHz Hor/ Ver [dBm]	Power EIRP for 25.255 GHz Hor/ Ver [dBm]	Antenna Gain Hor/ Ver [dBi]	Total conducted power/BW for 25.25 GHz (Limit -5 dBm) [dBm]/ Verdict	Total conducted power/BW for 25.255 GHz (Limit -13 dBm) [dBm]/ Verdict
4.31/ 4.76	1.5/ 2.04	28.29/ 28.20	-20.69/ Pass	-23.45/ Pass

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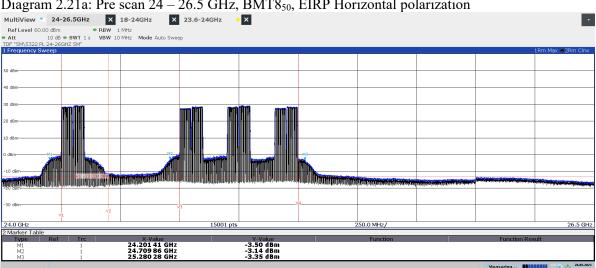
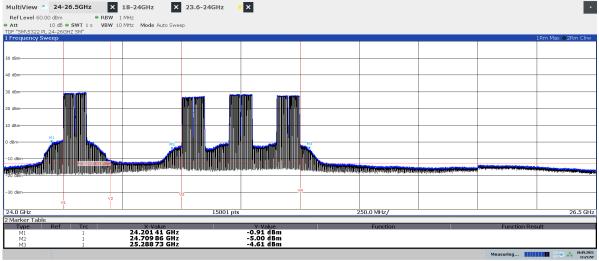


Diagram 2.21a: Pre scan 24 - 26.5 GHz, BMT850, EIRP Horizontal polarization

11:24:29 26.05.2021

Diagram 2.21b: Pre scan 24 – 26.5 GHz, BMT8₅₀, EIRP Vertical polarization



11:21:57 26.05.2021

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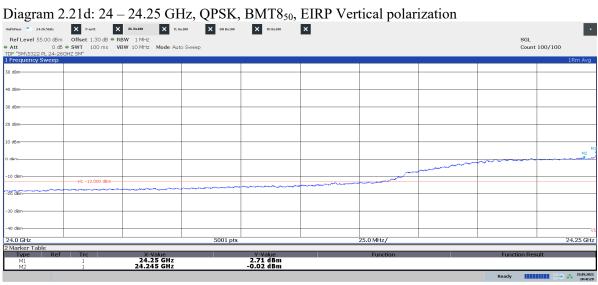
Reference P110766-F30-Rev1



RI.

	Offset 1.30 dB • RE	3W 1 MHz 3W 10 MHz Mode Auto	Sween	_	×			SGL	100/100
"5M\5322 PL 24-26		SW 10 MILZ MODE ADD	змеер					count	
requency Sweep									●1Rm /
Bm									
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Bm-									
									1
Bm									
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8m-									
3m									
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							······································	and the second s	
dBm-									
	H1 -13.000 dBm				a construction and the second of				
dBm									
									1
dBm									
									1
lBm-									
0 GHz			5001 pts	1		25.0 MHz/	1		24.25
arker Table	-	N 11 1							
Type Ref M1	1 Trc	X-Value 24.25 GHz		Y-Value 2.61 dBm		Function		Function Res	ult
M2	ī	24.245 GHz		-1.67 dBm					

14 15 OT ODCH DMTO • . 1 1 .



10:42:29 25.05.2021

Power EIRP for 24.25 GHz Hor/ Ver [dBm]	Power EIRP for 24.245 GHz Hor/ Ver [dBm]	Antenna Gain Hor/ Ver [dBi]	Total conducted power/BW for 24.25 GHz (Limit -5 dBm) [dBm]/ Verdict	Total conducted power/BW for 24.245 GHz (Limit -13 dBm) [dBm]/ Verdict
2.61/2.71	-1.67/ -0.02	25.25/25.03	-19.47/ Pass	-22.87/ Pass

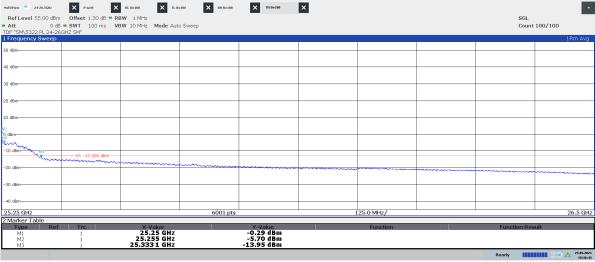
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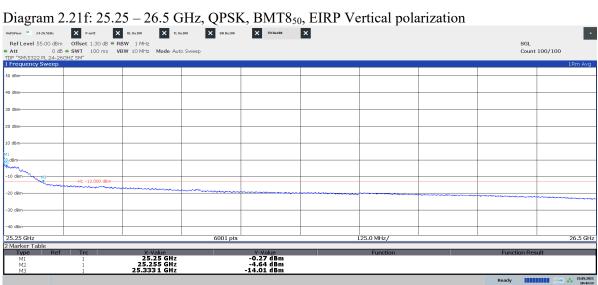
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Diagram 2.21e: 25.25 – 26.5 GHz, QPSK, BMT8₅₀, EIRP Horizontal polarization



10:36:43 25.05.2021



10:43:13 25.05.2021

Power EIRP for 25.25 GHz Hor/ Ver [dBm]	Power EIRP for 25.255 GHz Hor/ Ver [dBm]	Antenna Gain Hor/ Ver [dBi]	Total conducted power/BW for 25.25 GHz (Limit -5 dBm) [dBm]/ Verdict	Total conducted power/BW for 25.255 GHz (Limit -13 dBm) [dBm]/ Verdict
-0.29/ -0.27	-5.70/ -4.64	24.95/25.06	-22.27/ Pass	-27.14/ Pass

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Diagram 2.22a: 26.5 – 28 GHz, QPSK, BL₅₀, EIRP Horizontal polarization

w Spectr			z 🔸 🗙 26.5-28G	Hz X					
vel 20.00 dBm 0 dE		1 MHz 0 MHz Mode Auto Swe	ep						
5322 PL 26-28 ency Sweep	8GHZ 5M"							0	1Rm Max 😑 2i
andy on dep									
	H1 -13.000 dBm				M1				
					MI				A CONTRACTOR
					CONTRACTOR OF STREET, STRE	a se a fair a sta a fair a fai	Koningen institliten Koningen statistisk		
									-
łz			8001 pts		l	150.0 MHz/			2
r Table						13010 Mill 27			
e Ref	Trc	X-Value 27.347 113 GHz		Y-Value -19.67 dBm		Function		Function Res	1.

11:24:28 01.06.2021

Diagram 2.22b: 26.5 - 28 GHz, QPSK, BL₅₀, EIRP Vertical polarization

							0	1Rm Max 😑 2Rm
H1 -13.000 dBm				M1				
							and the second state of the second state of	
alai sula manadala takina ta sana ana ana ana		an a	*******	and the second	a constant and a solution			
				1	1			
	+11 - 13.000 dBm				M1 Y	M1 Wittram		

11:02:51 01.06.2021

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Diagram 2.23a: 26.5 - 28 GHz, QPSK, BT850, EIRP Horizontal polarization

vel 20.00 di	ectrum 🕂 🗙 1-18GF		z 🕂 🗙 26.5-286	HZ ×			
0	dB 🖷 SWT 1 s VBW 1		ep				
5322 PL 26 ency Swee	-28GHZ 5M"		1			0	1Rm Max 😑 2
	H1 -13.000 dBm				MI		
					-		and the second second second
	and a local statement of the second second	****	and the stand of the stand of the second	****	 and the local day of the local day		
			8001 pts		 150.0 MHz/	 	
z Table						Function Res	

12:11:40 01.06.2021

Diagram 2.23b: 26.5 - 28 GHz, QPSK, BT850, EIRP Vertical polarization

requency Swee			ep.				
	р				1	0	1Rm Max 😑 2Rm 0
m							
3m-							
	H1 -13.000 dBm					M1	
Bro				 			and and prover so that a provide state
	TELEVISION OF COMPANY OF COMPANY	an an ann an ann an an an an an an an an	and the state of the second state of the	 and the second	and the second second second		
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Bm-							
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Bm							
			1				
Bm							
3m							

12:15:07 01.06.2021

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Diagram 2.24a: 26.5 - 28 GHz, QPSK, BMT850, EIRP Horizontal polarization

	_	-	-	_					
/iew 🍍 Spe		Hz 🕂 🗙 18-24GHz	★ × 26.5-28G	Hz X					
Level 20.00 d	lBm ● RBW)dB ● SWT 1s VBW 10								
5M\5322 PL 26	-28GHZ 5M"	o Minz Mode Auto Sweep	,						
juency Swee	p.							θ	1Rm Max ⊜2Rm
n									
	H1 -13.000 dBm								
n								M1 T	
A PROPERTY AND A PROP	Man (1979) Market Balance Andrea (197	an a				and a second state of the	****	Carlot Construction of the state of the stat	
m									
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GHz			0004						28.
GHz ker Table			8001 pts			150.0 MHz/			28.
ype R	ef Trc	X-Value 27.831 177 GHz		Y-Value -20.02 dBm		Function		Function Res	ult
V11	1			20 02 dBm					

12:23:25 01.06.2021

Diagram 2.24b: 26.5 - 28 GHz, QPSK, BMT850, EIRP Vertical polarization

equency Swee	5-28GHZ 5M" ep					0	1Rm Max ⊜2Rm
m	H1 -13.000 dBm						
m					-	M1 T	
		a an ann an a	******	 			
3m-							
Sm-							
m							
m							
m							
			8001 pts		150.0 MHz/		28.

12:19:53 01.06.2021

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Diagram 2.25a: 28 – 40 GHz, QPSK, TH_{50} , EIRP Horizontal polarization

	dB 🖷 SWT 1 s VBW 10	1 MHz 3 MHz Mode Auto Sweep							
M\5322 PL 28-4 Juency Sweep	40GHZ 5M"							0	1Rm Max ⊜2Rm
·									
	H1 -13.000 dBm								
1									
n									
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1 W.			Marilan and an and a second						
n									
n									
n									
GHz	1	1	55001 pts	1	1	1.2 GHz/			40.
ker Table ype Re	f Trc	X-Value 28.299 231 GHz		Y-Value -22.51 dBm		Function		Function Res	ult

12:53:19 01.06.2021

Diagram 2.25b: 28 - 40 GHz, QPSK, TH₅₀, EIRP Vertical polarization

juency Sweep	IOGHZ 5M"							0	1Rm Max ⊜2Rm
pency officep									
	H1 -13.000 dBm								
	and the second second second second					And the second se	and the second		and the last and the second
1. D. D. Ottimoren	and the second	n alaan talada aantig ay adamiya intig marga aa ah y	ومناور ومعرور جزئي ومطاقعه ومراجع والمراجع	مى يېرىغ ۋە ئەتىرىكى يېرىغ _{ئىل} ىغانلىر	Manager and Statester and all states and	and the first of the second se	and the second sec	and the second	ىكالىغى _{تىرىغ} ى ياخلان.
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Diagram 2.26a: 28 - 40 GHz, QPSK, BT850, EIRP Horizontal polarization

NIMAGENERAL SUPERVISE	0 di	n								
H1 - 13.000 dbm Image: state s	\5322 PL 28-4								0	1Rm Max e2Rr
H1 - 13.000 e8m Image: second secon										
H1-13.000 #00 H1-1										
H1-13.000 dbm Image: state sta										
indication indication indication indication indication		H1 -13.000 dBm								
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Image: state				4						
Hz 55001 pts 1.2 GHz/										
	lz			55001 pts			1.2 GHz/			40
rr Table V-Value V-Value Function Function Result 1 28.219 378 GHz -34.08 dBm	er Table									

12:43:26 01.06.2021

Diagram 2.26b: 28-40 GHz, QPSK, BT850, EIRP Vertical polarization

uency Sweep	IOGHZ 5M"							0	1Rm Max 2Rn
	H1 -13.000 dBm								
- Marine Contraction						and the second	and the second	ويتعاديه والالالالالالي ويتعاديه	when we do not a second
000,000,000,000	A TALANA AND A TALANA	وروادة الملافة والمتعالمة ومعادلة المتعاول	and the Statistical sector states and	and the second state of the second state	The line of the state of the st	ll. Marine and a state of a state of the sta	and the second	and a state of the	مساقيد ليروب ومراجبته والمشافية
Hz			55001 pts			1.2 GHz/			40

12:39:48 01.06.2021

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Diagram 2.27a: 28 - 40 GHz, QPSK, BMT850, EIRP Horizontal polarization

evel 10.00 dBr. 0 d		I MHz) MHz Mode Auto Sweep	5						
4\5322 PL 28-4 uency Sweep	IOGHZ 5M"							6	1Rm Max ⊜2Rn
	H1 -13.000 dBm								
	and the second								also as to the analysis
ind the state of the second	يقيدون يتمالحانكما والبرر الماليك الالتراق	and the first of the	and the local sector of the	States of the second strategy and the second se	ملحم _{المع} لما والمنظم من المطلب المطلب المطلب ا			and a bar adding of the second second	line to attaile
Hz	1		55001 pts		L	1.2 GHz/			40
er Table De Ref	f Trc	X-Value 28.071 89 GHz		Y-Value -29.84 dBm		Function		Function Res	sult

12:31:23 01.06.2021

Diagram 2.27b: 28-40 GHz, QPSK, BMT850, EIRP Vertical polarization

0 5M\5322 PL 28- quency Sweet	dB • SWT 1 s VBW 10 40GHZ 5M"	Minz Mode Adto swe	45						(Dec Marco 200)
quency sweet									1Rm Max ⊜2Rm
n									
i.	H1 -13.000 dBm								
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l libbin or a second		A STREET MANY MARKET AND A STREET AND A STREET	فجل يتمنع وعناقت بالاطلقات وريا	and the second		A STREET BOARD AND A STREET BOARD	Artistanti al billi albana i ministra partera -	and the state of the	and and the second strength
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m									
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GHz			55001 pts			1.2 GHz/			40

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Diagram 2.28a: 40 - 60 GHz, QPSK, BH₅₀, EIRP Horizontal polarization

iView = 9-1	.G 🔸 🗙 43-60	OGHz X							
.evel -10.00 dBm									
		10 MHz Mode Auto Swe	ep						
uency Sweep	DBI","TPL 3 M" Inp: Ex	CTMIX U						0	1Rm Clrw = 2Rm
	H1 -13.000 dBm								
				M1					
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GHz	1	1	90001 pts	1	1	2.0 GHz/	1	1	60.
er Table	-	× 11 1		× 11 1					
npe Ref 11	2 Trc	X-Value 48.378 907 GHz		Y-Value -21.34 dBm		Function		Function Res	ult

15:30:51 01.06.2021

Diagram 2.28b: 40 - 60 GHz, QPSK, BH₅₀, EIRP Vertical polarization

ultiView 📍 9									
f Level -10.00 d		1 MHz 3 MHz Mode Auto Swe	~~						
"24240-20 40-6	OG DBI","TPL 3 M" Inp: Ext		ep						
equency Swee			1			1		0	1Rm Clrw e 2Rm N
	H1 -13.000 dBm								
dBm				M1					
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0 GHz		1	90001 pts	1	1	2.0 GHz/	I	1	60.0
arker Table									

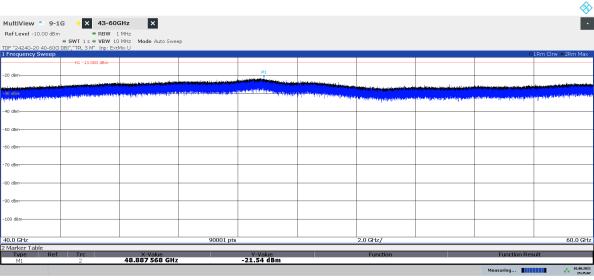
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Diagram 2.29a: 40 - 60 GHz, QPSK, BT850, EIRP Horizontal polarization



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Diagram 2.29b: 40 - 60 GHz, QPSK, BT850, EIRP Vertical polarization

	im • RBW :	1 MHz 0 MHz Mode Auto Swe							
24240-20 40-60	IG DBI", "TPL 3 M" Inp: Ext		ep						
quency Sweep								0	1Rm Clrw e 2Rm
	H1 -13.000 dBm								
				M1					l
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e <u>hi n</u> ika ing	an a	in the significant distribution in the second	Specific predicting property and the second	contribution distant store a surgery of	in a state of the st	a mana sa ka	an ing he of strain paint of the	an main an ann a' far Alstachaidhe an sa fadhaidhe an an	
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IBm-									
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GHz			90001 pts			2.0 GHz/			60.0

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Diagram 2.30a: 40 - 60 GHz, QPSK, BMT850, EIRP Horizontal polarization

43-60GHz RBW 1 MHz RBW 1 MHz 1 MHz 1 15 • VBW 10 MHz 2L 3 M" Inp: ExtMix U 1-13.000 dBm	Mode Auto Sweep							
1 s • VBW 10 MHz PL 3 M" Inp: ExtMix U 1 -13.000 dBm	Mode Auto Sweep							
PL 3 M" Inp: ExtMix U								
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alized at the bit officer with the			1				0	1Rm Clrw 😐 2Rm I
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					Contraction of the later of	1 of other name		
		90001 pts		1	2.0 GHz/		11	60.0
rc 45	X-Value 8 613 127 GHz		-21 34 dBm		Function		Function Res	ult
	rc 44		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·			

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Diagram 2.30b: 40 - 60 GHz, QPSK, BMT850, EIRP Vertical polarization

IultiView 📍	9-1G 🔶 🗙 43-60	GHz ×							
ef Level -10.00									
F "24240-20 40-	 SWT 1 s = VBW 1 60G DBI", "TPL 3 M" Inp: Ex 	0 MHz Mode Auto Swe tMix U	ep						
requency Swe	ер		1		1	1		0	1Rm Clrw 😐 2Rm M
	H1 -13.000 dBm								
dBm				M1					
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Stated of the state of the second sec		'				and the second secon	er an	and a straight of the second se	
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.0 GHz		1	90001 pts			2.0 GHz/			60.0 0
4arker Table									
Type	Ref Trc	X-Value 48.602.016 GH		Y-Value -21.23 dBm		Function		Function Res	ult

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Diagram 2.31a: 60 - 75 GHz, QPSK, BH₅₀, EIRP Horizontal polarization

	-60GHz X	60-75GHz X	75-90GHz >	4					
Level -10.00 dBr									
	SWT 1 s • VBW 1	3 MHz Mode Auto Sv	weep						
"TPL 1M","26240-; equency Sweep	20 60-92G DBI" Inp: Ex	:tMix E						0	1Rm Clrw @2Rm N
equency oweep									
	H1 -13.000 dBm								
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Bm									denter a second to day
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and the second	ndi manananan dalamanan	rir olanı i yanı alıfana alafadı	ana ali a na shi na shi na shi kata	en and a fair and a state of the product of the state of	all beautiful to the second provide	An of the Association of the Ass	W vite constraints		
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18m	ni politika kati ji mang pika kangawa Gap politika kati ji mang pika kangawa	niska posed - posision de la Andrea Angles na al posision de la Andrea 			n line and a set of the set of th	an a			
IBm	ni e e internet in en	nde anges af search and an anges and anges and anges af a search and an anges af a search and an anges af a search ang				an a			
18m		nti kan por et y por talen talen An talen t In talen ta			n lipensis i su y son centre fen to				75.0
Bm		A value 74.01126 G	66001 pt			n diploy of physical distances of the second s		Function Res	75.0

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Diagram 2.31b: 60 - 75 GHz, QPSK, BH₅₀, EIRP Vertical polarization

fLevel -10.00 dB	m • RBW 11	MHz	75-90GHz ×						
	20 60-92G DBI" Inp: ExtM	MHz Mode Auto Sweep 4ix E)						
quency Sweep								0	1Rm Clrw 2Rm I
	H1 -13.000 dBm								
m									M1
n									
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Sinner a con		the second in the light with	i ni finanti nel dinte secondo e secondo		line film to the second start	Adam (1		
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	an na haifin an an taon an taon an	terite in the second	el e la contra de l La contra de la contr La contra de la contr	r _{ene} das <mark>permitikentikentikentikentikentikentikentike</mark>	<mark>ypanie (zynanie) beziechnie da</mark>	dad an training			
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m m m m m	en nen en her	hald ang data di san sa di san Nga di sa di san sa d Internet di san sa di	al an	r _{en dan} semiliketing <u>i b</u> éli	<u>ilanni (operan) elder in filosof</u>				
m	Construction of the second se second second sec	ning and an a An an	an filmen an	ren dia <u>Constantion (bell</u>	nga mining kang ng kang				
m		ning and a second s	66001 pts		<u>ng an mini kapa na ng kapa na ng kapa ng Ng kapang ng kapang ng</u>	1.5 GHz/			75.0

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Diagram 2.32a: 60 - 75 GHz, QPSK, BT850, EIRP Horizontal polarization

	40-60GHz 🗙	60-75GHz	× 75-90GHz	×					
Level -10.00									
	SWT 1 s • VBW	3 MHz Mode Auto	Sweep						
TPL 1M", 262 equency Swe	10-20 60-92G DBI" Inp: E:	×tMi× E						0	1Rm Clrw e 2Rm I
reportey on a									
	H1 -13.000 dBm								
Bm									MI
Bm								فحدني	AND INCOME.
bin								Sector Street	ere solution
3m-						المراجع المراجع المراجع	والافرط والمادية المتحادين والمتحد والمتحد	altraiter	Sardia to be as a second of the
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All realized days	abellevial to avoid a site		and the firm in a statistic in the	المجارة أتعاد وأروا والأقارة فأنعظ والمعاد المقدمات	AND A REAL PROPERTY OF A DESCRIPTION OF A D		an a stad of the character distribution of the	Alterate in the second s	
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Bm									
Bm									
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Bm									
IBm									
Bm									
Bm									
3m			66001	pts		1.5 GHz/			75.0
Bm	Ref Trc	X-Value 73.938 08		Pts Y-Value -17.03 dBm		1.5 GHz/ Function		Function Res	75.0

09:10:15 02.06.2021

Diagram 2.32b: 60 - 75 GHz, QPSK, BT850, EIRP Vertical polarization

			75-90GHz ×						
fLevel -10.00 dBr									
"TRL 1M" "26240-1	 SWT 1 s = VBW 3 20 60-92G DBI" Inp: Exth 	MHz Mode Auto Swee	:p						
equency Sweep								e	1Rm Clrw 😑 2Rm N
dBm-	H1 -13.000 dBm								
abiii									المساملين ا
iBm-									A DESCRIPTION OF THE PARTY OF T
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dBm						and a support of the second	فالتقاه المتشارة والقات المأفين وتفاسك	New York West	Alatan C. Linco addad?
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and the second secon	dal		the local states of the states			and the second se	substitution of the second of the	data. 1	
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and the second second second	in and successive and successive of	an albert a that and a line and the	ald a weige that this character to be in the	n an		^{lahis} aran dari kana sa	abayla balan ta ana ang a		
Referencies and the second	<mark>in andre services and the services of the ser</mark>	laniha orta piata nimitra 1999 ga kimari na ga ana ani	ni i seni prime pissi prime di ni di inter Nanta prime da la contra da cont	nt and an a second of the first	a na manina na mana ana ana ana ana ana ana ana a	n an	aller for the second of the		
	<mark>interspinantelevisatiersen p</mark> ipi Minimaatieterspergensen pip	<mark>la sila baha jalakin katimi</mark> Ang baha di kasarta di baha baha	alli va politika si sa basan na kanga balan sa sa Mana yangan da basa sa	n an fean an the second start of the second start start of the second start of the sec	<mark>y la a a mény den ing dia panén akama kana kalang dia bang dia panén kana kana kana kana kana kana kana </mark>	<mark>alberen hen gester en del</mark>	alberheilten suur an al 15		
	<mark>interspillenste inden sinden sinden sinden.</mark> Minden sinden von sinden sin 	<mark>en en linste konstanten en stellen konstanten en sen er posisionen er en stellen er en en stellen er en en en s er</mark>	n de ferre de ferre de la companie de la ferre de la companie de la ferre de la companie de la companie de la La companie de la comp	n an fean an tha an	<mark>gita gindepterdendenden bisken van den set ginde</mark> 	<mark>n bereinin kultu bu bu sun sun sun sun sun sun sun sun sun su</mark>	adhardfada a suar o su a d		
dBm	<mark>in ander ander An ander and ander and and and and</mark>	en el la desenta de la dese La desenta de la desenta de	alli posta de la constante de La constante de la constante de La constante de la constante d	tekenet interationen er er	landad a galanda a galanda a galada a g	an bergenne her bergenne der er bergen en der bergen einer der bergen einer der bergen einer der bergen einer d	adherdial to the state of the s		
dBm	<mark>Mandona (</mark> angelander) Mandona (angelander) 	an an the and the second and a state of the second second second second second second second second second seco An an	an a	i nakona ki yadi porađju i kilo i kondenska se na na n	<mark>g Ta an III de plant de l'Angenes y d'angel de la de</mark>	n fleren en	alle alle to the state of the s		
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dem	<mark>i forski na ostan na stanovna stanovna stanovna stanovna stanovna stanovna stanovna stanovna stanovna stanovna 1</mark>	un alles ^f or e privation de la constitue de la Especia de la constitue de la co Especia de la constitue de la c		n and an and a second secon	anging ing ing ing ing ing ing ing ing in	ng bengengengengengengengengengengengengenge	dan de la sur sur sur la		
dBm		un albes konten provinsi konten ander nyele etter konten anten bijet kin er en	an a sha ka sha sha sha sha sha sha sha sha sha sh	inging and an	an organization and a second	<mark>ullet (</mark> south al south of the	dan dan da angela da		
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dBm	l loometanistation nationalistation	n allaskastastastastastastastasta Aptientin taina alla karaktasta 			(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)				
dBm	обеонолики и на на на на на на на на Странити и и и и и и и и и и и и и и и и и и		dinenden systemet for the former of the systemet of the systemet of the systemet of the systemet of the system 66001 pts		(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	ара Сүйлэр ой дэрэгэлэг 			75.0 0

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Diagram 2.33a: 60 - 75 GHz, QPSK, BMT850, EIRP Horizontal polarization

IltiView = 40	0-60GHz X	60-75GHz 🗙	75-90GHz ×						
fLevel -10.00 dB				•					
"TR 1M" "06040	 SWT 1 s VBW 3 20 60-92G DBI" Inp: Ex 	3 MHz Mode Auto Swe	ep						
equency Sweep	-20 60-926 DBt Trip: EX	UMIX E						0	1Rm Clrw
	H1 -13.000 dBm								
3m-	H1 -13.000 UBM								MI
-m									THE REAL PROPERTY.
								ALL BALLER AND	a destinition of the second
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				المتعادلة والمتعادية والمساور والمساور	ALL AND A DESCRIPTION OF THE PARTY OF THE PA	hel et als and a second	a se consta ser rischnaft filt	Andread	
TANK DI WARTING		والمترافية التجر والمرد والطرافية والمراجع	the second in the second second in the second s	Auf fille auf helpe bereiten bereiten aus in	an and a solition	shield in manifestation of the statest	at we also had be been a set of the set of t		
all describe to a second second		de a la konstruit a definit a construit a su	e an	Contraction and the part of the	<mark>na hali na kata halan tinaké sakadan</mark> Ligna (1 kali para na kana (1 kali na disi ka				
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3m			1						
sm									
Bm									
Bm									
GHz			66001 pts			1.5 GHz/			75.0
rker Table Type Re	f Trc	X-Value 73.993 77 GH		Y-Value -16.91 dBm		Function		Function Res	alt
M1	2	7 Yalac	_	1 C Od JD		Tuncuon		Tancaoning	And I

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Diagram 2.33b: 60 - 75 GHz, QPSK, BMT850, EIRP Vertical polarization

	_		_						~
IultiView 🍍 40	-60GHz × 6	0-75GHz ×	75-90GHz ×						
Ref Level -10.00 dBr									_
		MHz Mode Auto Sweep							
Frequency Sweep	20 60-92G DBI" Inp: Ext	MIXE						0	1Rm Clrw
	H1 -13.000 dBm								
.5 dBm									. ¥1
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- 10							a property and the second second second	and the second	With an appropriate the second
is all the							Philipping and a state of the second		
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				and international second second		International Association and the			
Manager and the second	10	lan Saali qaqilaan Ushacida ay	and the second	and the state of the second	Addition of the second s				
a normal an allost should	o <mark>nantanan ana da hana da</mark>	and half and head of the state	all de différence enforment aus						
10 dBm									
IS dBm									
50 dBm									
SS dBm									
0.0 GHz			66001 pts			1.5 GHz/			75.0 G
Marker Table			66001 pts			1.5 GHZ/			75.0 G
Type Ref		X-Value 74.030 13 GHz		Y-Value -16.74 dBm		Function		Function Res	ult
M1	2	74.030 13 GHz		-16.74 dBm					
								Measuring	

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Diagram 2.34a: 75 - 90 GHz, QPSK, BH₅₀, EIRP Horizontal polarization

iView 📍 40	-60GHz X (50-75GHz	X 75-90GHz X	<					
evel -10.00 dBr									
	• SWT 1 s • VBW 3		Sweep						
PL 1M","26240-2 Juency Sweep	20 60-92G DBI" Inp: Ex	tMix E						0	1Rm Clrw e2Rm
1	H1 -13.000 dBm								
			M1						
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GHz	1		66001 p	s	1	1.5 GHz/	1	1	90.0
ker Table									
ype Ref	Trc	X-Value 79.926 403		Y-Value -16.81 dBm		Function		Function Res	ult

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Diagram 2.34b: 75 - 90 GHz, QPSK, BH₅₀, EIRP Vertical polarization

● RBW 1 N SWT 1 s ● VBW 3 N	MHz							
-92G DBI" Inp: ExtM		, 						
							0	1Rm Clrw ●2Rm M
-H1 -13.000 dBm								
		M1						
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	i	66001 pts	i	L	1.5 GHz/			90.0
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Diagram 2.35a: 75 - 90 GHz, QPSK, BT850, EIRP Horizontal polarization

									4
ultiView = 4	0-60GHz ×	60-75GHz	× 75-90GHz >	٢					
ef Level -10.00 di				-					
F "TPL 1M" "26240	 SWT 1 s VBW VB0-20 60-92G DBI" Inp: E 		ito Sweep						
requency Swee	р			1			1	C	1Rm Clrw ⊜2Rm M
	H1 -13.000 dBm								
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Type Re M1	ef Trc	X-Val 80.646 84		Y-Value -17.12 dBm		Function		Function Re	sult
1191	4	60.040 84	10 GHZ	-17.12 000				Measuring	
								Measuring	- 02.06. • 09:0

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Diagram 2.35b: 75 - 90 GHz, QPSK, BT850, EIRP Vertical polarization

ultiView = 40		0-75GHz X	75-90GHz X	1					4
			75-90GH2						
ef Level -10.00 dB	m • RBW 1 • SWT 1 s • VBW 3								
F "TPL 1M","26240-	20 60-92G DBI" Inp: Exth		ep						
requency Sweep			-	T			T	0	1Rm Clrw
	H1 -13.000 dBm								
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			M1 The strategic states and						
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Type Re	f Trc	X-Value		Y-Value -17.28 dBm		Function		Function Res	Jult
M1	2	X-Value 80.002 765 GH	z	-17.28 dBm					

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Diagram 2.36a: 75 – 90 GHz, QPSK, BMT850, EIRP Horizontal polarization

tiView = 4	0-60GHz	60-75GHz	X 75-90GHz X	2					
.evel -10.00 di			x 70 500m2						
	🖷 SWT 1 s 🖷 VBW	3 MHz Mode Au	to Sweep						
IPL 1M", 26240 quency Swee	-20 60-92G DBI" Inp: E	×tMi× E						0	1Rm Clrw
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	H1 -13.000 dBm-								
m			M1						
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ker Table									
ype Re	ef Trc 2	X-Val 79.547 54	le	Y-Value -17.27 dBm		Function		Function Res	sult

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Diagram 2.36b: 75 - 90 GHz, QPSK, BMT850, EIRP Vertical polarization

rel -10.00 dBm			75-90GHz ×						
		MHz Mode Auto Sweep	o l						
ency Sweep	700-920 DBI 110. EXU		1			1		0	1Rm Clrw
	H1 -13.000 dBm								
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lz			66001-1-			1.5 GHz/		<u> </u>	90
r Table			66001 pts			1.5 GHZ/			90

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Diagram 2.37a: 90 - 100 GHz, QPSK, BH₅₀, EIRP Horizontal polarization

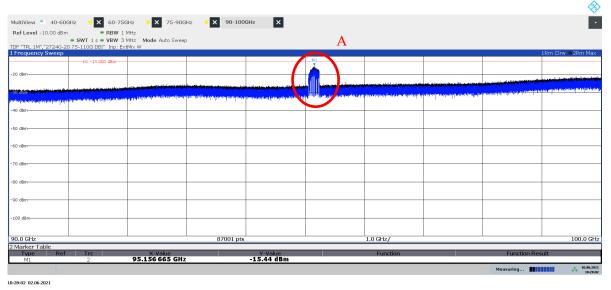
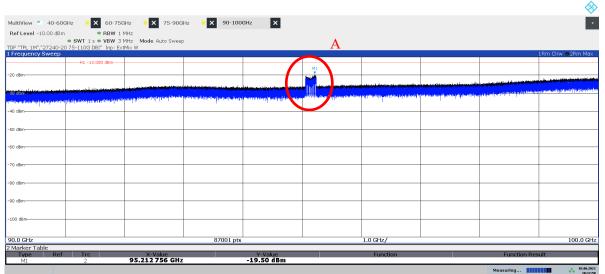


Diagram 2.37b: 90 - 100 GHz, QPSK, BH₅₀, EIRP Vertical polarization



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A) "False signals" originating from unwanted mixer products between LO signal generated by the spectrum analyser and the high field strength from the EUT are marked with red circle.

RI.

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Diagram 2.38a: 90 - 100 GHz, QPSK, BT850, EIRP Horizontal polarization

ultiView = 40-6	0GHz 🕂 🗙 60-75	GHz + X 75-900	GHz 🔆 🗙 90-100	GHz X					
ef Level -10.00 dB									
er Lever - 10.00 db		MHz Mode Auto Swee	p						
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	H1 -13,000 08m								
dBm								1	
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Marker Table			0/001 pts			110 01127			
Type Re M1	f Trc	X-Value 99.901 553 GHz		Y-Value -21.03 dBm		Function		Function Res	sult
MIT	2	99.901 353 GR		-21.02 (IDIII					- 02.06.2

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Diagram 2.38b: 90 - 100 GHz, QPSK, BT850, EIRP Vertical polarization

ıltiView 🍍 40-60	IGHz 🕂 🗙 60-750	GHz 🕂 🗙 75-900	GHz 🔶 🗙 90-100	GHz 🗙					
ef Level -10.00 dBn									
- "TDI 1M" = 27240-3	 SWT 1 s VBW 3 VBS 3 VBS 3 VBS 4 <l< th=""><th>MHz Mode Auto Swee</th><th>P</th><th></th><th></th><th></th><th></th><th></th><th></th></l<>	MHz Mode Auto Swee	P						
requency Sweep								0	1Rm Clrw
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arker Table			87001 pts			1.0 GHZ/			100.0
Type Ref		X-Value		Y-Value -21.24 dBm		Function		Function Res	ult
M1	2	99.861 438 GH	Z	-21.24 dBm					

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Diagram 2.39a: 90 - 100 GHz, QPSK, BMT850, EIRP Horizontal polarization

/iew = 40-60GHz	★ × 60-75GHz +	🗙 75-90GHz 🛛 🔆 🗙	90-100GHz X					
.evel -10.00 dBm	• RBW 1 MHz							
SWT	1 s 🗢 VBW 3 MHz Mo	le Auto Sweep						
PL 1M","27240-20 75-110 Juency Sweep	OG DBI" Inp: ExtMix W						0	1Rm Clrw
	-13.000 dBm							
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ker Table		0	roorpts		110 01127			100.
/pe Ref T	rc >	-Value 5 575 GHz	Y-Value -20.98 dBm		Function		Function Res	ult
11	2 99.93	5 575 GHz	-20.98 dBm					

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Diagram 2.39b: 90 - 100 GHz, QPSK, BMT850, EIRP Vertical polarization

lultiView 🎫 40-	60GHz 🔶 🗙 60-75	GHz 🕂 🗙 75-90G	Hz 🕂 🗙 90-100	GHz 🗙					
ef Level -10.00 d	iBm 🛛 🖷 RBW 1	MHz							
		MHz Mode Auto Sweep	, ,						
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1arker Table									
Type R M1	tef Trc	X-Value 99.974 196 GHz		Y-Value -21.08 dBm		Function		Function Res	ult

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Frequency stability measurements according to 47 CFR §2.1055

Date	Temperature (test equipment)	Humidity (test equipment)
2022-02-10	$23 \text{ °C} \pm 3 \text{ °C}$	25 % ± 5 %
2022-02-11	$23 \ ^{\circ}C \pm 3 \ ^{\circ}C$	25 % ± 5 %
2022-02-14	$23 \ ^{\circ}C \pm 3 \ ^{\circ}C$	$20\%\pm5\%$

Test set-up and procedure

The measurements were made per definition in ANSI C63.26, 5.6.

A temperature chamber with a RF transparent door was used and a measurement antenna was aligned outside the temperature chamber. The option NR 5G downlink measurements K144 in the spectrum analyser was used to demodulate the signal and report the frequency error.

Measurement equipment	RISE number
R&S FSW 43	902 073
RF Cable	BX50236
EMCO Horn Antenna 3116	503 279
Temperature Chamber	503 360
Testo 635, temperature and humidity meter	504 203
Multimeter Fluke 87	502 190

f

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Test condit	ions			
Supply voltage DC (V)	Temp. (°C)	Frequency error (Hz)		
40.8	+20	-47		
55.2	+20	-52		
48.0	+20	-48		
48.0	+30	-55		
48.0	+40	-62		
48.0	+50	-70		
48.0	+10	-76		
48.0	0	+86		
48.0	-10	-36		
48.0	-20	-92		
48.0	-30	-91		
Maximum freq.	Maximum freq. error (Hz)			
Measurement un	ncertainty	<±1 x 10 ⁻⁷		

Nominal transmitter frequency was 24300 MHz (BL) with a bandwidth of 100 MHz.

Remark

The frequency stability performance is sufficient to ensure that the fundamental emission stays within the authorized frequency band.

End of report.



Verification

Transaction 09222115557467084142

Document

P110766-F30-rev1 Main document 92 pages *Initiated on 2022-04-12 13:51:54 CEST (+0200) by Tomas Lennhager (TL) Finalised on 2022-04-12 14:55:30 CEST (+0200)*

Signing parties

ndgren@ri.se iel Lungeren 022-04-12 14:55:30 CEST (+0200)

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