FCC Test Firm Designation Number: FR0014
ISED Wireless Device Testing Laboratory CAB Number: FR0004

Matériel testé : *Equipment under test*:	**IDENTEC SOLUTIONS** iQ355 W / iQ355 XW / iQ355 W NFC / iQ355 XW NFC (IDS1010 & IDS1013) *(Trademark / Marketing name or product reference)*

Demandeur de certification :
Applicant for certification:
IDENTEC SOLUTIONS AG
Millennium Park 2
A-6890 Lustenau – Austria

Client :
Customer:
IDENTEC SOLUTIONS AG
Millennium Park 2
A-6890 Lustenau – Austria

Numéro d'affaire :
Work number :
15067

Référence de la proposition :
Proposal number:
092022-25638

Date de l'essai :
Date of test:
Du 22 au 24 mai 2023 / 14 décembre 2023
May 22nd to 24th, 2023 / December 14th, 2023

Objectif des essais :
Test purpose:
EMC qualification according to following standards:
- CFR 47, FCC Part 15, Subpart C
(Chapter 15.249 - Operation within the bands 902–928 MHz, 2400–2483.5 MHz, 5725–5875 MHz, and 24.0–24.25 GHz)
- Industry Canada, RSS-Gen Issue 5 & RSS-210 Issue 10, section B.10
(Bands 902–928, 2400–2483.5 and 5725–5875 MHz)
Measurement standards:
ANSI C63.10 (2013)

Lieu du test:
Test location:
SMEE, 385 rue René Rambaud
38500 VOIRON - France

Test réalisé par :
Test realized by:
Chemseddine KERMICHE

Conclusion :
Conclusion:
L'équipement satisfait aux prescriptions et essais des normes citées en référence.
The appliance complies with requirements and tests of above mentioned standards.

Ed.	Date	Modifications / Pages	Written by : Visa	Approved by: Visa
1	January 5th, 2024	Initial Edition	Chemseddine KERMICHE *Test operator*	Laurent Chapus *Technical Manager*

COORDONNEES
SMEE
385 rue René Rambaud – ZA Le Parvis 2
38500 VOIRON - France
TEL : 04 76 65 76 50
FAX : 04 76 66 18 30
SAS au capital de 50 000 € / RC Grenoble B534 796 453 / SIRET 534 796 453 00023 / code APE 7490B / n° TVA : FR 59 534 796 453

Contents

1. Normative References

FCC qualification according to:		
Standards	**Applied**	**Title**
ANSI C63.10 (2013)	X	American National Standard for Testing Unlicensed Wireless Devices
CFR47, Part 15 (June 2023)	X	Telecommunication – Federal Communication Commission – Radio frequency devices, Sections 15.207 / 15.209 / 15.249

Industry Canada qualification according to:		
Standards	**Applied**	**Title**
RSS-Gen (Issue 5/2018, amendments 2019 and 2021)	X	General Requirements and Information for the Certification of Radio Apparatus
RSS-210 (Issue10/2019+Amendment 2020)	X	Licence-exempt Radio Apparatus: Category I Equipment, Section B.10: Devices Operating in Frequency Bands for Any Application, Band 2400-2483.5MHz.

Deviation from standards: None.

2. Test synthesis

TEST	Paragraph number FCC Part 15 IC RSS-210	Spec. FCC Part 15 IC RSS-210	RESULTS (comments)
Conducted emissions test	15.207 (a) RSS-Gen: Issue 5, §8.8	15.207 (a) Table 4, §8.8	N/A (1)
Field Strength of fundamental	15.249 (a) (c) RSS-210: Issue 9, §B.10 (a)	94dBµV/m @3m (50mV/m @ 3m)	**PASS**
Field Strength of harmonics	15.249 (a) (c) (e) RSS-210: Issue 9, §B.10 (a)	54dBµV/m @3m (0.5mV/m @ 3m)	**PASS**
Unwanted emissions outside the specified frequency band and harmonics	15.209 / 15.249 (d) (e) RSS-210: Issue 9, §B.10 (b) / RSS-Gen: Issue 5, §8.9	Whichever is less stringent, either: - 50dB below level of fundamental, or; - General field strength limits, as follow: Measure at 300m 9-490kHz: 2400µV/m/F(kHz) Measure at 30m 0.490-1.705: 24000µV/m/F(kHz) 1.705-30MHz: 30µV/m Measure at 3m 30MHz-88MHz : 40 dBµV/m 88MHz-216MHz : 43.5 dBµV/m 216MHz-960MHz : 46.0 dBµV/m Above 960MHz : 54.0 dBµV/m	**PASS**
Occupied Bandwidwth	FCC part 15.215 RSS-Gen: Issue 5, §6.7	BW at 99% and at -20dB	**PASS**

NA: Not Applicable
(1): Battery operated equipment.

- **General conclusion:**

Measures and tests performed on the sample of the product *IDENTEC SOLUTIONS / IDS1010 & IDS1013*, in configuration and description presented in this test report, show compliance with standards FCC CFR 47, PART 15, Subpart C and Industry Canada RSS-Gen & RSS-210.

3. Equipment Under Test (EUT)

Nom / ***Identification***	**IDENTEC SOLUTIONS** iQ355 W / iQ355 XW / iQ355 W NFC / iQ355 XW NFC (IDS1010 & IDS1013)	Sn: 0.405.011.019 (IDS1010) Sn: 0.405.011.018 (IDS1013)

FCC ID: OO4-IDS1010
IC: 3538A-IDS1010
Model / HVIN: IDS1010 & IDS1013
Product name / PMN: iQ355 W / iQ355 XW & iQ355 W NFC / iQ355 XW NFC
FVIN: 01.06

Différence de modèles : / ***Models differences:***
iQ355 XW is ATEX-certified model without NFC tag functionality. (P/N: 456250)
iQ355 W is not-ATEX certified without NFC tag functionality. (P/N: 456260)
iQ355 XW NFC is ATEX-certified model with NFC tag functionality. (P/N: 456282)
iQ355 W NFC is not-ATEX certified with NFC tag functionality. (P/N: 456281)
Note: ATEX or not-ATEX certified version have same hardware configuration.
Note: The NFC version features a NFC tag with only Rx functionality.
All tests are performed on iQ355 XW (IDS1010) and iQ355 XW NFC (IDS1013)

Alimentation / ***Power supply***
3VDC from internal battery

Auxiliaires / ***Auxiliaries***
- PC Laptop ASUS, model F200M
- i-Point Si (Identec Solutions product)

Entrées-Sorties / ***Input / Output***

	Câbles pour essai / *Cables for test*	Blindé / *Shielded*	Prévu pour >3m / *Intended for >3m*
None	-	-	-

Mode de fonctionnement / ***Running mode***
Equipment running modes are:
The tested sample is able to be set in following modes:
- Transmit a modulated carrier frequency on low, middle and high channels (902.5/915/927.5MHz)

Programme de test / ***Test program /***
PC test program "Gen3 Tag Certification tool Version: 1.0.1.19267"

Fréquence max interne EST / ***Max internal EUT frequency***
927.5 MHz for RF data transmission.

Informations supplémentaires / ***Additional informations***
Declaration of the applicant:
- Type of technology: Proprietary RF protocol.
- Emission bands: 902-928MHz.
- Frequency transmission band: 902.5 to 927.5MHz.
- Channel spacing 0.5MHz from 902.5 to 927.5MHz
- Modulation: FSK 40kHz.
- Antenna type: PCB trace antenna.
- Equipment intended for use as a portable equipment.
- Equipment designed for continuous operation.
- Antenna type: PCB trace antenna.
- Rated conducted output power setting: 11dBm.

Dimensions de l'EST / ***Dimensions of EUT***
52mm x 41.7 x 16.8

4. Test conditions

Power supply voltage:
Equipment under test: 3V DC (New battery).
Auxiliaries: None.

5. Modifications of the EUT

None.

6. Special accessories

None required for compliance with emission limits.

7. Measurement Uncertainty

Test Description	Expanded uncertainty
Conducted emissions test (150k-30MHz, AC mains)	± 3.5dB
Radiated emission test (9kHz-30MHz, electric field)	± 4.0dB
Radiated emission test (30-200MHz, SAC 3m)	± 5.6dB
Radiated emission test (200-1000MHz, SAC 3m)	± 5.3dB
Radiated emission test (1-18GHz, FAC 3m)	± 5.6dB
Radiated emission test (18-40GHz, FAC 3m)	± 5.6dB
Conducted RF output power at antenna port	± 1.6dB
Radiated RF output power (Peak, Power density)	± 5.6dB
DTS Bandwidth, 99% OBW	±4%
Temperature	± 1°C
Time and duty cycle calculation	±1%
AC and DC voltage	±1%

Note: Expended uncertainty at 95% confidence (k=2)

8. Field Strength Calculation

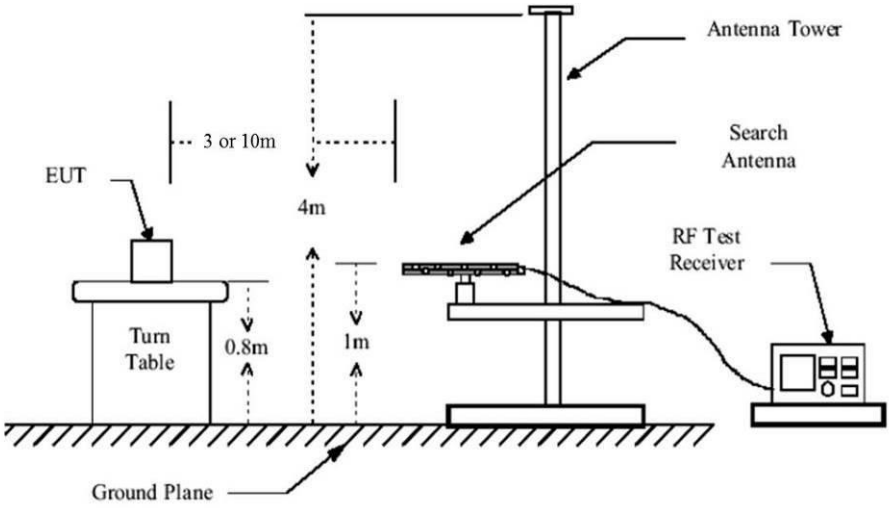
The field strength (level) is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation is as follow:
FS = RA + AF + CF – AG
Where FS = Field Strength (Level)
RA = Receiver Amplitude (Meter Reading)
AF = Antenna Factor
CF = Cable Factor
AG = Amplifier Gain
Margin value = Emission level – Limit value

Example:
RA: 14.0dBµV / AF: 16.5 dBm^{-1} / CF: 3.5dB / AG: 15dB
→ Total factor: $5dBm^{-1}$
→ Field level: 19.0dBµV/m (-21.0dB for margin if limit is 40dBµV/m)

9. Field Strength of fundamental

TEST: Field strength of fundamental / FCC part 15.249 – RSS 210 §B.10		**Verdict**
Method: Measurements were made in a 3-meter Semi anechoic chamber (SAC) that complies with ANSI C63.4 / C63.10. Measurements were performed with a peak detector using a 100kHz RBW. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements (Peak) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4 m. The tested equipment is set to transmit operation with modulation on lowest, middle and highest channels. Three orthogonal axis measurements on EUT are performed to obtain the maximum peak field strength.		**Pass**
Laboratory Parameters:	Required prior to the test	During the test
Ambient Temperature	20 to 30 °C	24°C ± 2
Relative Humidity	30 to 70 %	45% ± 5
Limits – FCC Part 15.249 (a) (c) / RSS-210 §B.10 (a)		
Frequency (MHz)	Limits (dBµV/m)	
	Level / Detector / Distance	Results
902 to 928 MHz	94dBµV/m / Quasi-peak / 3m	**Pass**
Supplementary information: Test location: SMEE Test date: May 22th, December 14th 2023.Tested by C. KERMICHE.		

Test Setup for radiated emission



Test setup for 30-1000MHz (3m)

Tabulated Results for Field Strength of fundamental / IDS1010					
FREQ	**Field Strength @ 3m**	**Detector**	**Limit**	**Margin**	**Result**
(MHz)	(dBµV/m)		(dBµV/m)	dB	
902.5	**91.9**	QP	94.0	-2.1	**Pass**
915.0	**92.4**	QP	94.0	-1.6	**Pass**
927.5	**90.8**	QP	94.0	-3.2	**Pass**
RBW:		100kHz			
Measurement distance:		3m			
Limit:		FCC Part 15.249 (a) (c) / RSS-210 §B.10			
Final measurement detector:		Quasi-Peak			
RESULT:		PASS			

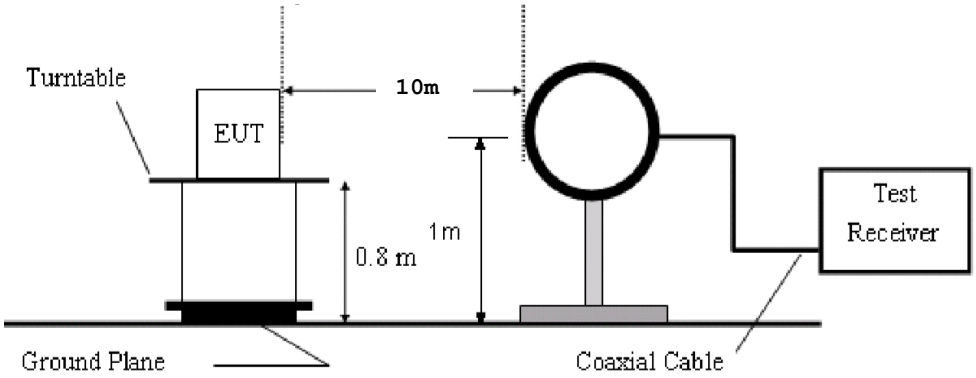
Tabulated Results for Field Strength of fundamental / IDS1013					
FREQ	**Field Strength @ 3m**	**Detector**	**Limit**	**Margin**	**Result**
(MHz)	(dBµV/m)		(dBµV/m)	dB	
902.5	**88.0**	QP	94.0	-6.0	**Pass**
915.0	**85.9**	QP	94.0	-8.1	**Pass**
927.5	**84.8**	QP	94.0	-9.2	**Pass**
RBW:		100kHz			
Measurement distance:		3m			
Limit:		FCC Part 15.249 (a) (c) / RSS-210 §B.10			
Final measurement detector:		Quasi-Peak			
RESULT:		PASS			

10. Unwanted emissions & Field Strength of harmonics

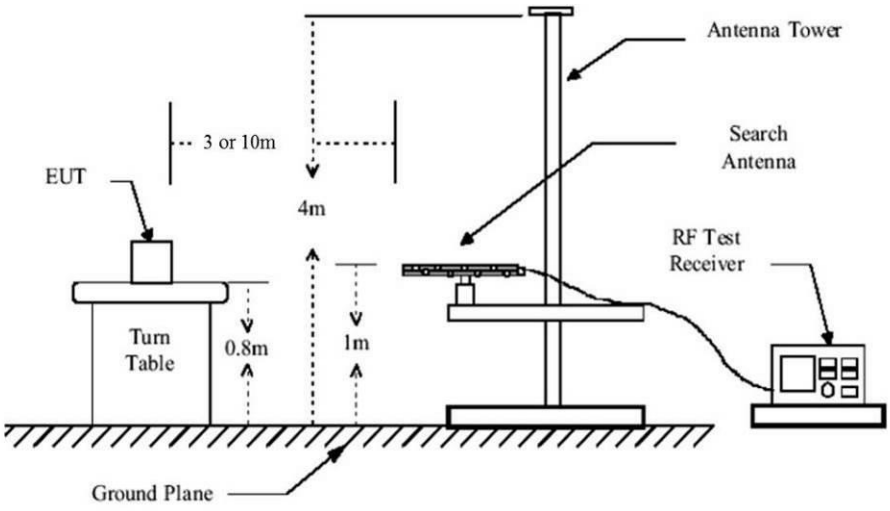
TEST: Unwanted emissions outside fundamental and harmonics bands / FCC part 15.209, 15.249 - RSS-210 §B.10 / RSS-Gen §8.9		**Verdict**
Method: Measurements were made in a 3-meter Semi Anechoic Room (SAR) for frequency 30MHz to 1GHz and in a 3-meter Full Anechoic environment (SAR with floor absorbers) above 1GHz. The Semi Anechoic Room complies with CISPR16-1-4 / ANSI C63.4 requirements. For frequency 9kHz to 30MHz, measurements are performed on a free-space open area test site at 10m distance. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3 meter. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements (Peak, Quasi-peak, Average) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4 m. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.		**Pass**
Laboratory Parameters:	Required prior to the test	During the test
Ambient Temperature	20 to 30 °C	22°C ± 2
Relative Humidity	30 to 70 %	45% ± 5
Fully configured sample scanned over the following frequency range	Frequency range on each side of line	Measurement Point
	9kHz – 30MHz	10 m measurement distance
	30MHz – 10GHz	3 m measurement distance
Limits – FCC Part 15.209, 15.249 (a) (c) (d) (e) / RSS-Gen §8.9, RSS-210 §B.10 (a) (b)		
Whichever is less stringent, either:		
Frequency (MHz)	Limits (dBµV/m)	
	Level / Detector / Distance	Level / Detector / Distance
30 to 1000	50dB below the fundamental / QP / 3m	Not used
Above 1GHz	50dB below the fundamental / Av / 3m 30dB below the fundamental / Pk / 3m	Not used
Or		
Frequency (MHz)	Limits (dBµV/m)	
	Level / Detector / Distance	Results
0.009 to 0.090	107.6 – 87.6 / AV / 10m 127.6 – 107.6 / PK / 10m	**Pass**
0.090 to 0.110	87.6 – 85.9 / QP / 10m	**Pass**
0.110 to 0.490	85.7 – 72.9 / AV / 10m 105.7 – 92.9 / PK / 10m	**Pass**
0.490 to 1.705	52.9 – 42.1 / QP / 10m	**Pass**
1.705 to 30	48.6 / QP / 10m	**Pass**
30 to 88	40.0 / QP / 3m	**Pass**
88 to 216	43.5 / QP / 3m	**Pass**
216 to 960	46.0 / QP / 3m	**Pass**
960-1000	54.0 / QP / 3m	**Pass**
Above 1GHz	54.0 / AV / 3m 74.0 / PK / 3m	**Pass**

Supplementary information:
Test location: SMEE
Test date: May 24th, December 14th 2023. Tested by C. KRMICHE.

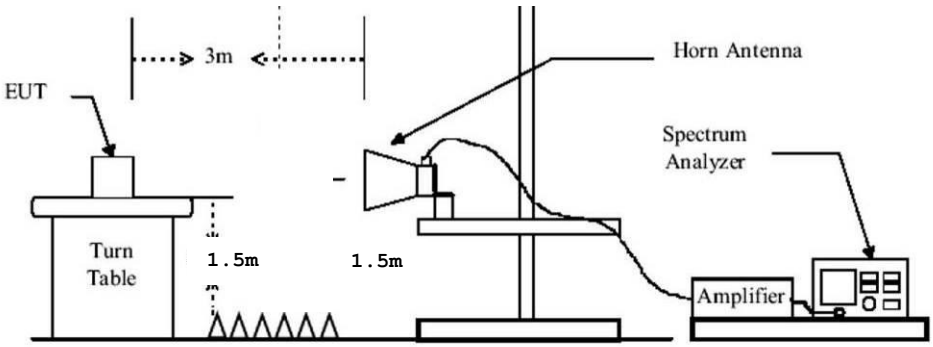
Test Setup for radiated emission



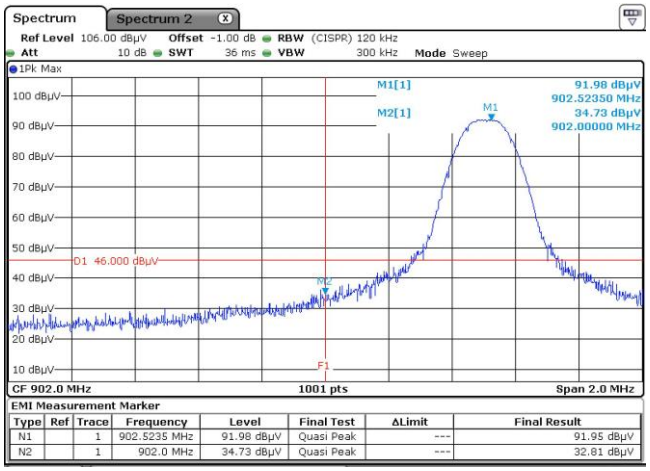
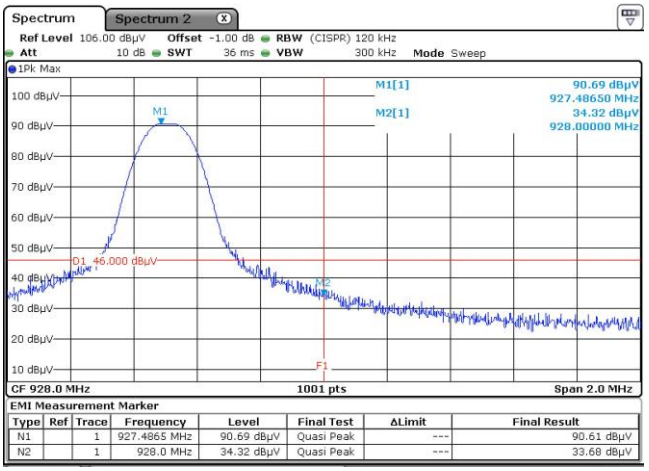
Test setup for 9k-30MHz

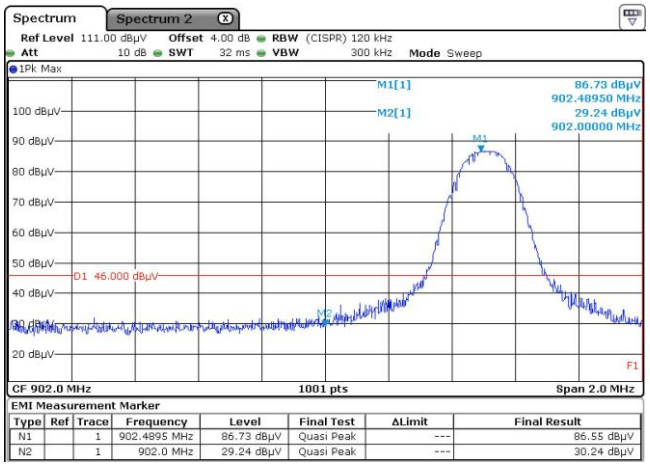
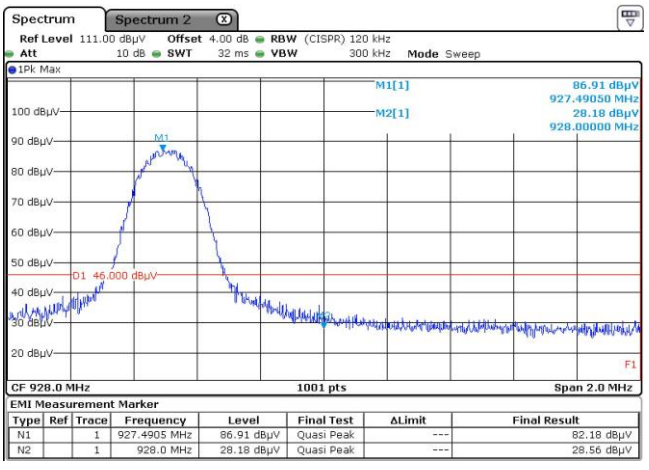


Test setup for 30-1000MHz (3m)



Test setup for 1-10GHz

Graphical representation of Band-edge compliance (Radiated) – IDS1010	
	
Low band-edge compliance M2 = 902MHz Quasi-Peak level below 902MHz is 32.8dBµV/m max at 3m (limit is 46dBµV/m) RESULT: PASS Note: Radiated measurement	*High band-edge compliance* M2 = 928MHz Quasi-Peak level below 902MHz is 33.7dBµV/m max at 3m (limit is 46dBµV/m) RESULT: PASS Note: Radiated measurement

Graphical representation of Band-edge compliance (Radiated) – IDS1013	
	
Low band-edge compliance M2 = 902MHz Quasi-Peak level below 902MHz is 30.24dBµV/m max at 3m (limit is 46dBµV/m) RESULT: PASS Note: Radiated measurement	*High band-edge compliance* M2 = 928MHz Quasi-Peak level below 902MHz is 28.56dBµV/m max at 3m (limit is 46dBµV/m) RESULT: PASS Note: Radiated measurement

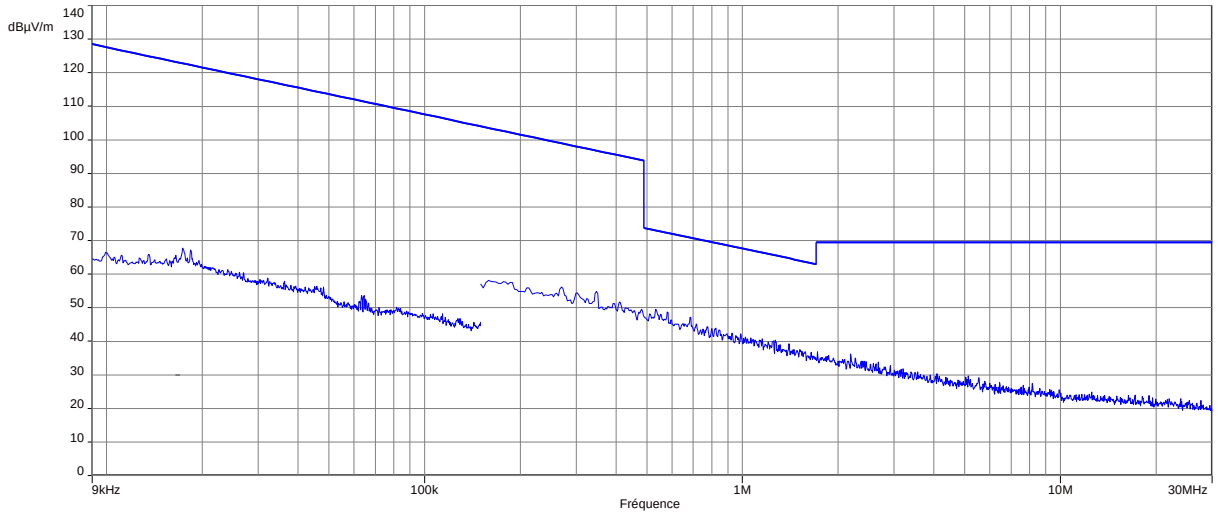
Tabulated Results for Unwanted emissions (9kHz-490kHz)							
FREQ	**RF field @ 300m**	**Limit @ 300m**	**Detector**	**Margin**	**Ant. angle**	**Table angle**	**Correc. Fact. (CF)**
MHz	dBµV/m	dBµV/m	Pk / QP / AV	dB	Degree	Degree	dB
All levels are at least 10dB below applicable limits							
Supplementary information: Frequency list measured has been created with pre-scan results.							
Frequency band investigated:	9kHz-490kHz						
RBW:	200Hz (9kHz-150kHz) 9kHz (150kHz-30MHz)						
Measurement distance:	10m						
Final measurement detector:	Peak / Quasi-Peak / Average						
Limit:	FCC Part 15.209 / RSS-Gen						
Note:	CF: Correction factor = Antenna factor + Cable loss *1: Measure have been done at 10m distance and corrected according to requirements of 15.209.e / RSS-Gen clause 6.5) (M@300m = M@10m-59.1dB) Loop antenna used and rotated about its axis to maximize any emission.						

Tabulated Results for Unwanted emissions (490kHz-30MHz)							
FREQ	**RF field @ 30m**	**Limit @ 30m**	**Detector**	**Margin**	**Ant. angle**	**Table angle**	**Correc. Fact. (CF)**
MHz	dBµV/m	dBµV/m	Pk / QP	dB	Degree	Degree	dB
All levels are at least 10dB below applicable limits							
Supplementary information: Frequency list measured has been created with pre-scan results.							
Frequency band investigated:	490kHz-30MHz						
RBW:	9kHz (150kHz-30MHz)						
Measurement distance:	10m						
Final measurement detector:	Quasi-Peak						
Limit:	FCC Part 15.209 / RSS-Gen						
Note:	CF: Correction factor = Antenna factor + Cable loss *1: Measure have been done at 10m distance and corrected according to requirements of 15.209.e) (M@30m = M@10m-19.1dB) Loop antenna used and rotated about its axis to maximize any emission.						

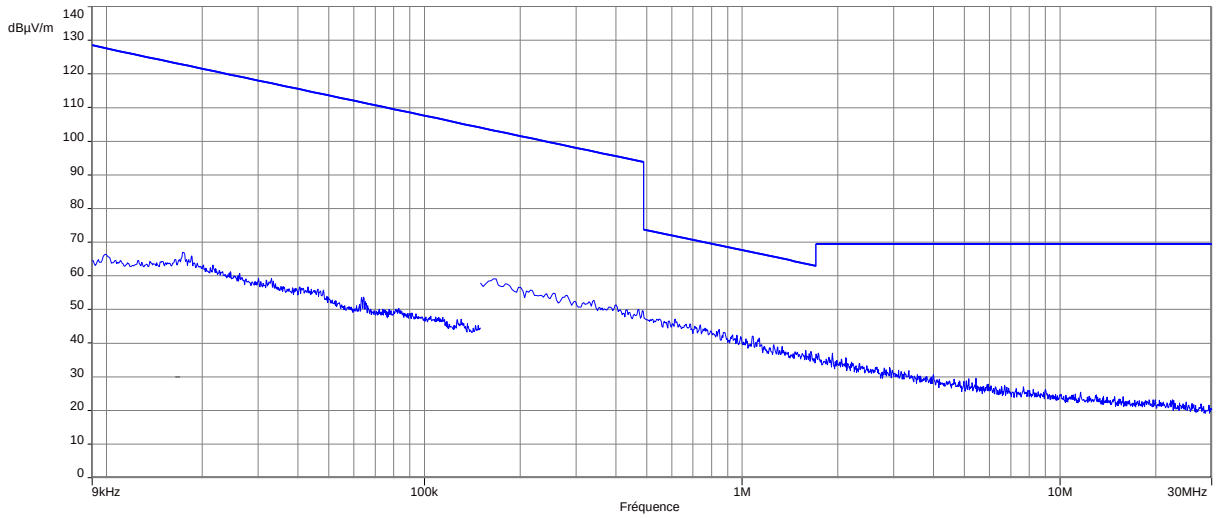
Tabulated Results for Radiated Disturbance (3m measurement in semi anechoic room, 30MHz-1GHz)								
FREQ MHz	**Field level** (Pk) dBµV/m	**Field level** (QP) dBµV/m	**Limit** (QP) dBµV/m	**Margin** dB	**Table angle** Degree	**Antenna height** m	**Total factor** dB	**Pol** H/V
All levels are at least 10dB below applicable limits								
Frequency band investigated:	30MHz-1GHz							
RBW:	120kHz							
Measurement distance:	3m							
Limit:	FCC Part 15.209 – 15.249 / RSS-Gen §8.9 – RSS-210 §B.10 (b)							
Final measurement detector:	Quasi-Peak							
Wide Measurement Uncertainty:	PASS							
RESULT:	Limits used are FCC part 15.209 / RSS-Gen.							

Graphical representation of Radiated Disturbance Measurement (Peak detection, Anechoic chamber pre-scan, 9kHz-30MHz / 3m / Parallel & Perpendicular antenna position / Transmit mode)

Parallel



Perpendicular

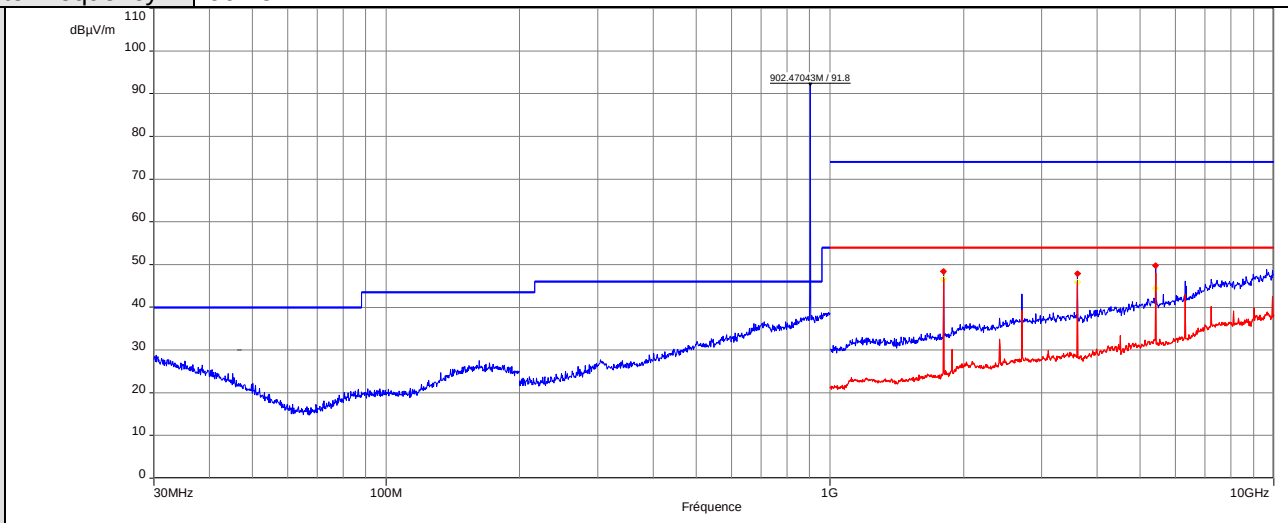


Frequency band investigated:	9kHz-30MHz
Unit :	dBµV/m
RBW :	200Hz (9kHz-150kHz) 9kHz (150kHz-30MHz)
Antenna polarization :	Parallel & Perpendicular to measurement axis
Measurement detector:	Peak
Notes:	Pre-scan graph only for identification purpose. Same results for IDS1010 & IDS1013

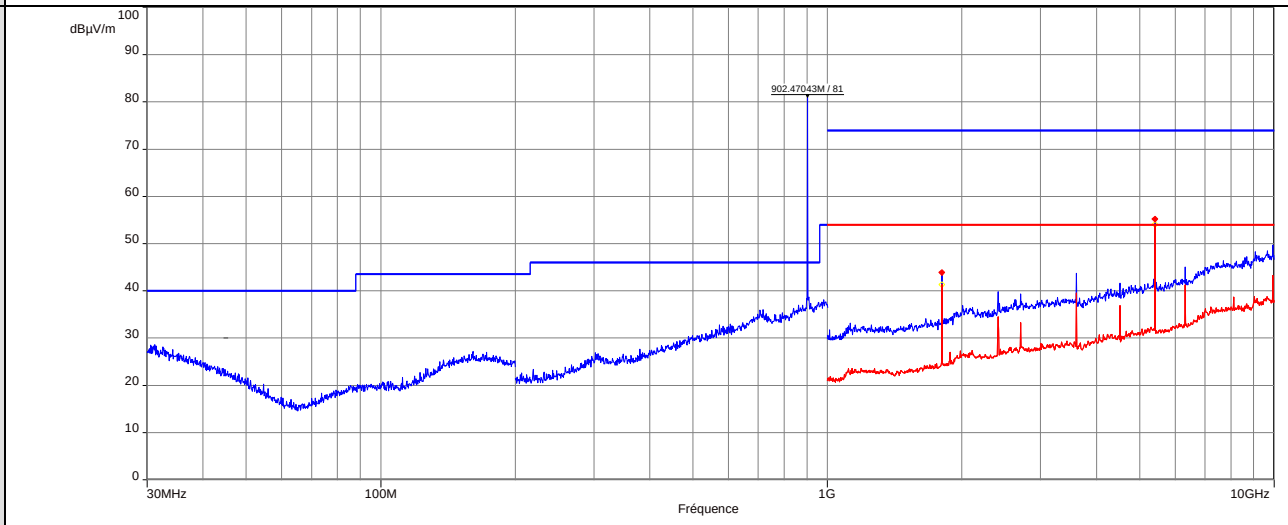
Graphical representation of Radiated Disturbance Measurement (Peak detection, Full Anechoic Chamber pre-scan, 30MHz-10GHz / 3m / Transmit mode / Worst position)
IDS1010

Center frequency: 902.5 MHz

HORIZONTAL POLARIZATION



VERTICAL POLARIZATION

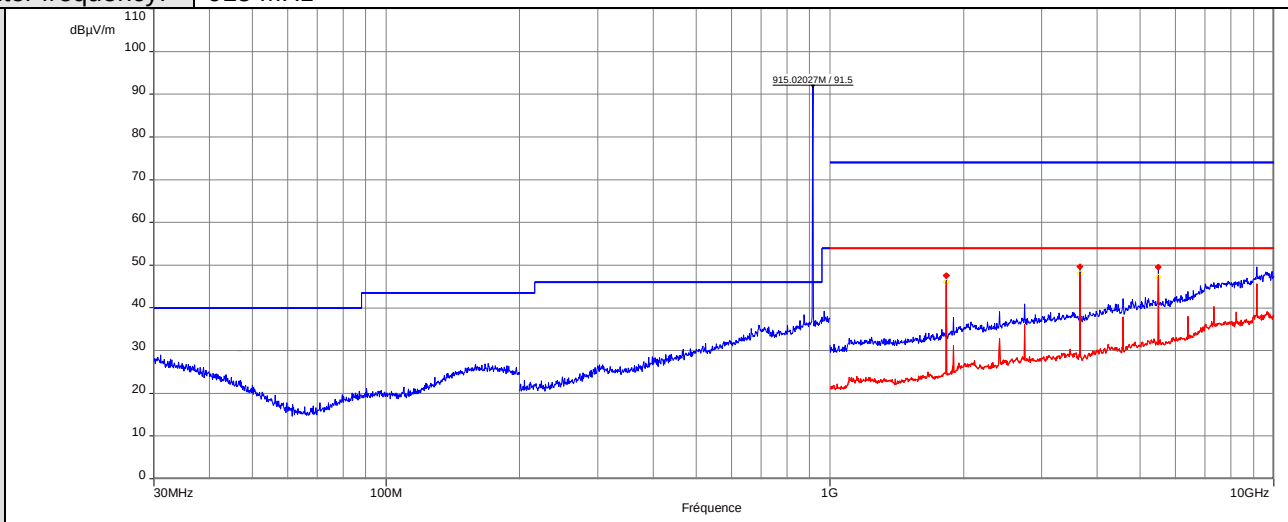


FREQ	Field level	Field level	Limit	Limit	Margin	Margin	Table angle	Ant height	Total factor	Pol	Note
MHz	(PK) dBµV /m	(AV) dBµV/m	(PK) dBµV/m	(AV) dBµV/m	(PK) dB	(AV) dB	Degree	m	dB		
1805.0026	49.32	47.79	74.00	54.00	**-24.68**	**-6.21**	181.80	2.19	-10.08	H	Pass
3609.99102	48.69	46.09	74.00	54.00	**-25.31**	**-7.91**	339.50	1.09	-5.31	H	Pass
5415.10429	50.07	46.53	74.00	54.00	**-23.93**	**-7.47**	55.60	1.09	0.54	H	Pass
1804.98257	44.98	42.01	74.00	54.00	**-29.02**	**-11.99**	2.20	2.00	-10.09	V	Pass
5414.86882	55.52	53.16	74.00	54.00	**-18.48**	**-0.84**	172.30	1.09	0.54	V	Pass
RBW :			100kHz < 1GHz and 1MHz > 1GHz.								
Final measurement detector:			Quasi-Peak below 1GHz. Peak and CISPR Average above 1GHz.								

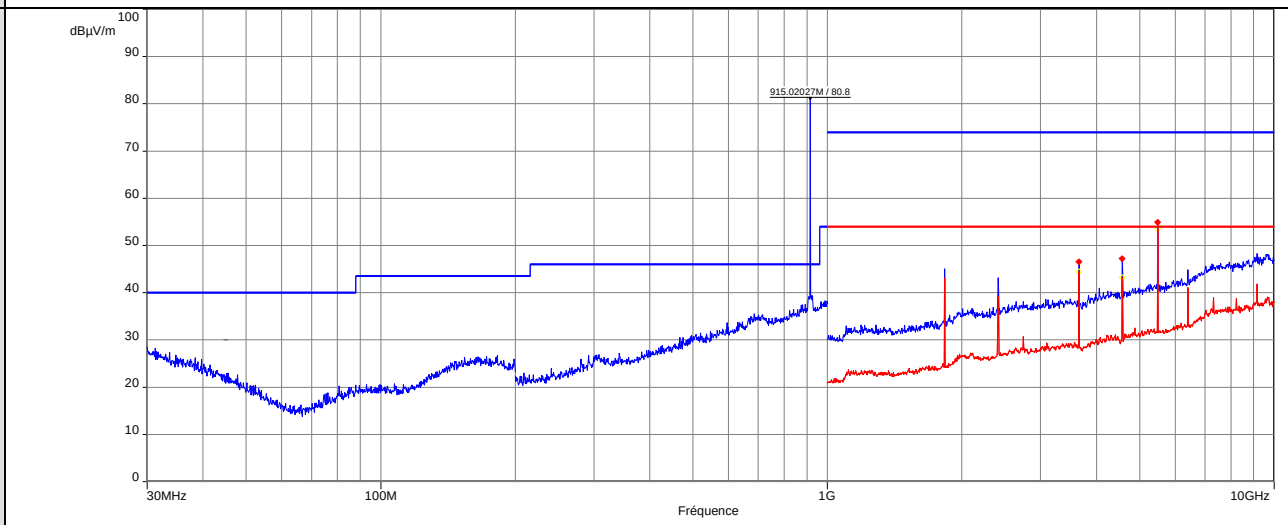
Graphical representation of Radiated Disturbance Measurement (Peak detection, Full Anechoic Chamber pre-scan, 30MHz-10GHz / 3m / Transmit mode / Worst position)
IDS1010

Center frequency: 915 MHz

HORIZONTAL POLARIZATION



VERTICAL POLARIZATION

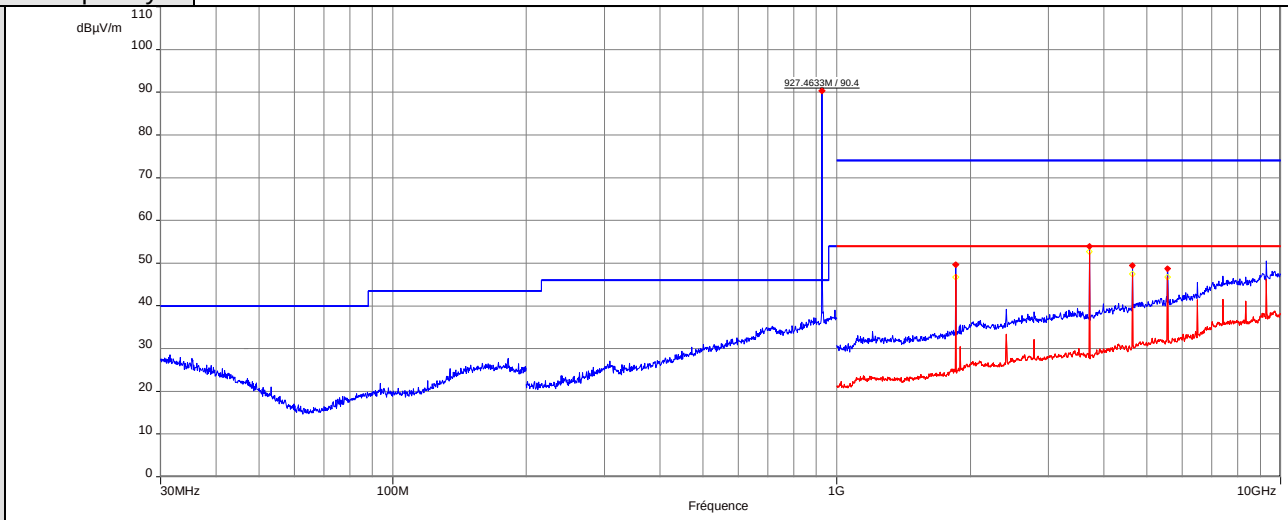


FREQ	Field level	Field level	Limit	Limit	Margin	Margin	Table angle	Ant height	Total factor	Pol	Note
MHz	(PK) dBµV /m	(AV) dBµV/m	(PK) dBµV/m	(AV) dBµV/m	(PK) dB	(AV) dB	Degree	m	dB		
1829.98831	50.70	49.13	74.00	54.00	**-23.30**	**-4.87**	224.20	1.37	-9.82		Pass
3659.9773	53.30	51.65	74.00	54.00	**-20.70**	**-2.35**	340.50	1.71	-5.25		Pass
5489.91132	50.49	47.54	74.00	54.00	**-23.51**	**-6.46**	230.00	1.09	0.56		Pass
3660.06131	47.91	44.56	74.00	54.00	**-26.09**	**-9.44**	180.70	1.10	-5.25		Pass
4574.9893	46.31	41.55	74.00	54.00	**-27.69**	**-12.45**	333.20	2.03	-2.31		Pass
5490.18627	54.90	53.80	74.00	54.00	**-19.1**	**-0.20**	164.6	1.1	0.56		Pass
RBW :			100kHz < 1GHz and 1MHz > 1GHz.								
Final measurement detector:			Quasi-Peak below 1GHz. Peak and CISPR Average above 1Ghz.								

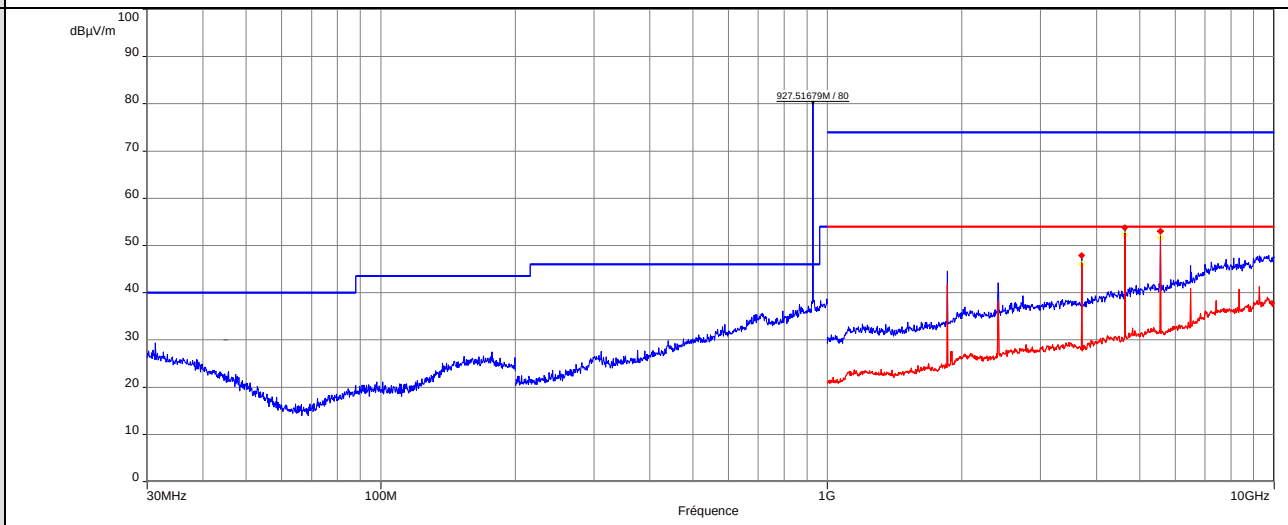
Graphical representation of Radiated Disturbance Measurement (Peak detection, Full Anechoic Chamber pre-scan, 30MHz-10GHz / 3m / Transmit mode / Worst position)
IDS1010

Center frequency: 927.5 MHz

HORIZONTAL POLARIZATION



VERTICAL POLARIZATION

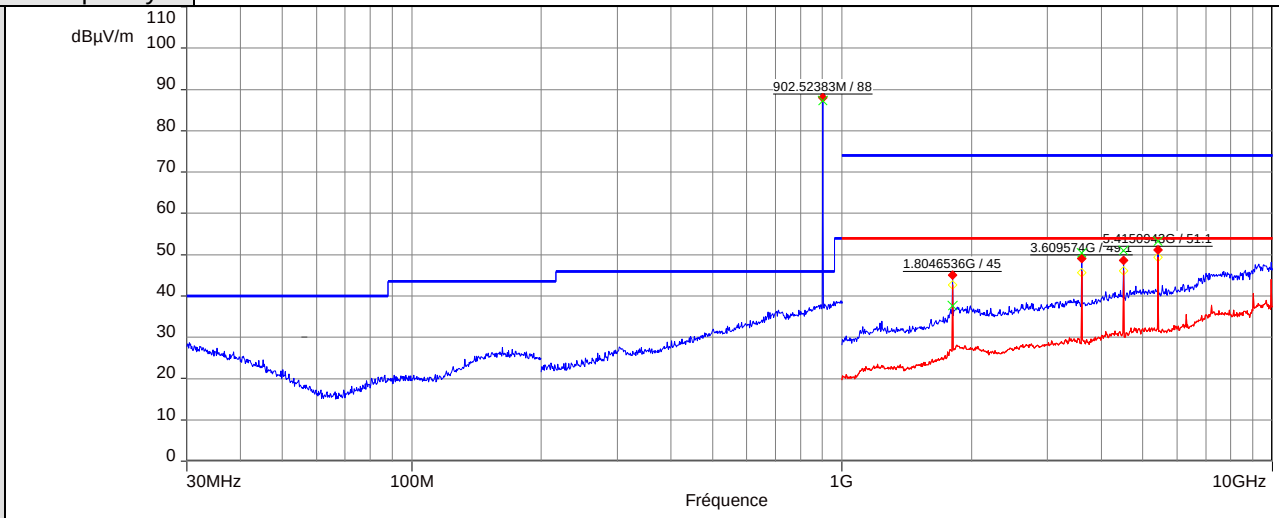


FREQ	Field level	Field level	Limit	Limit	Margin	Margin	Table angle	Ant height	Total factor	Pol	Note
MHz	(PK) dBµV /m	(AV) dBµV/m	(PK) dBµV/m	(AV) dBµV/m	(PK) dB	(AV) dB	Degree	m	dB		
1855.1054	50.91	49.66	74.00	54.00	**-23.09**	**-4.34**	221.30	1.44	-9.59		Pass
3709.93071	54.30	53.05	74.00	54.00	**-19.70**	**-0.95**	347.90	1.95	-5.32		Pass
4637.6085	49.42	45.85	74.00	54.00	**-24.58**	**-8.15**	40.40	1.10	-1.95		Pass
5565.09128	50.01	46.49	74.00	54.00	**-23.99**	**-7.51**	234.60	1.09	0.66		Pass
3709.780652	47.91	44.56	74.00	54.00	**-26.09**	**-9.44**	201.20	1.09	-5.32		Pass
4637.65299	54.25	52.32	74.00	54.00	**-19.75**	**-1.68**	305.90	1.10	-1.95		Pass
5565.20177	54.30	52.20	74.00	54.00	**-19.70**	**-1.80**	182.60	1.09	0.66		Pass
RBW :			100kHz < 1GHz and 1MHz > 1GHz.								
Final measurement detector:			Quasi-Peak below 1GHz. Peak and CISPR Average above 1Ghz.								

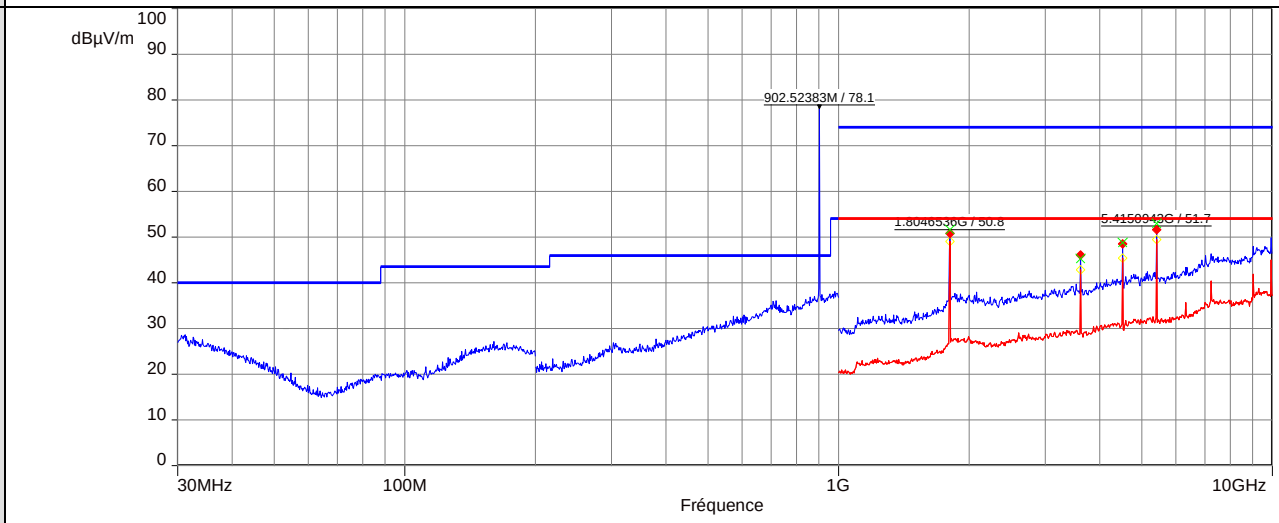
Graphical representation of Radiated Disturbance Measurement (Peak detection, Full Anechoic Chamber pre-scan, 30MHz-10GHz / 3m / Transmit mode / Worst position)
IDS1013

Center frequency: 902.5 MHz

HORIZONTAL POLARIZATION



VERTICAL POLARIZATION

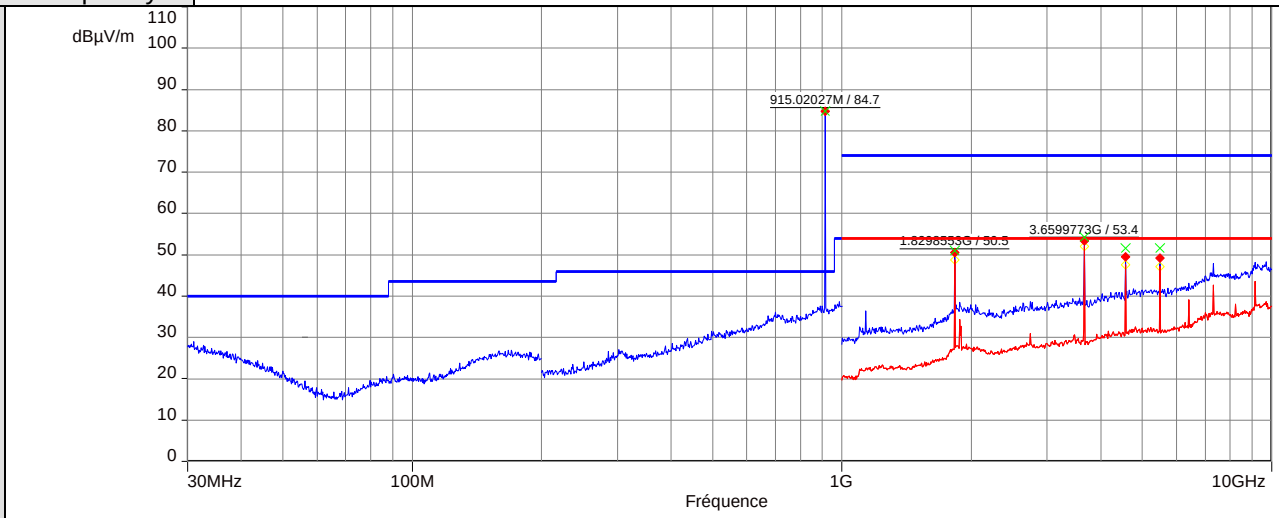


FREQ	Field level	Field level	Limit	Limit	Margin	Margin	Table angle	Ant height	Total factor	Pol	Note
MHz	(PK) dBµV /m	(AV) dBµV/m	(PK) dBµV/m	(AV) dBµV/m	(PK) dB	(AV) dB	Degree	m	dB		
1805.10609	37.55	24.34	74.00	54.00	**-36.45**	**-29.66**	359.50	2.67	-6.53	H	Pass
3610.0029	50.44	47.57	74.00	54.00	**-23.56**	**-6.43**	323.70	1.09	-4.11	H	Pass
4512.51951	50.96	47.60	74.00	54.00	**-23.04**	**-6.40**	276.30	1.09	-1.13	H	Pass
5414.86842	53.25	50.72	74.00	54.00	**-20.75**	**-3.28**	338.40	1.09	0.91	H	Pass
1805.09958	51.57	49.83	74.00	54.00	**-22.43**	**-4.17**	275.80	1.09	-6.53	V	Pass
3610.0596	45.33	40.20	74.00	54.00	**-28.67**	**-13.80**	1.90	1.20	-4.11	V	Pass
4512.39082	48.82	44.30	74.00	54.00	**-25.18**	**-9.70**	159.40	1.45	-1.13	V	Pass
5415.08919	52.93	50.35	74.00	54.00	**-21.07**	**-3.65**	224.00	1.47	0.91	V	Pass
RBW :			100kHz < 1GHz and 1MHz > 1GHz.								
Final measurement detector:			Quasi-Peak below 1GHz. Peak and CISPR Average above 1GHz.								

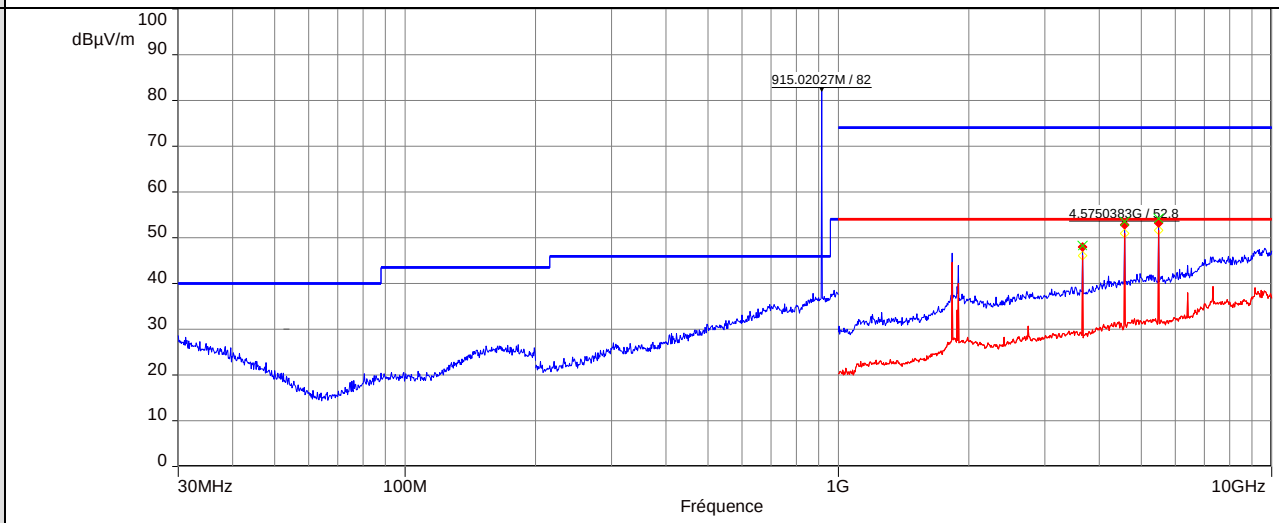
Graphical representation of Radiated Disturbance Measurement (Peak detection, Full Anechoic Chamber pre-scan, 30MHz-10GHz / 3m / Transmit mode / Worst position)
IDS1013

Center frequency: 915 MHz

HORIZONTAL POLARIZATION



VERTICAL POLARIZATION

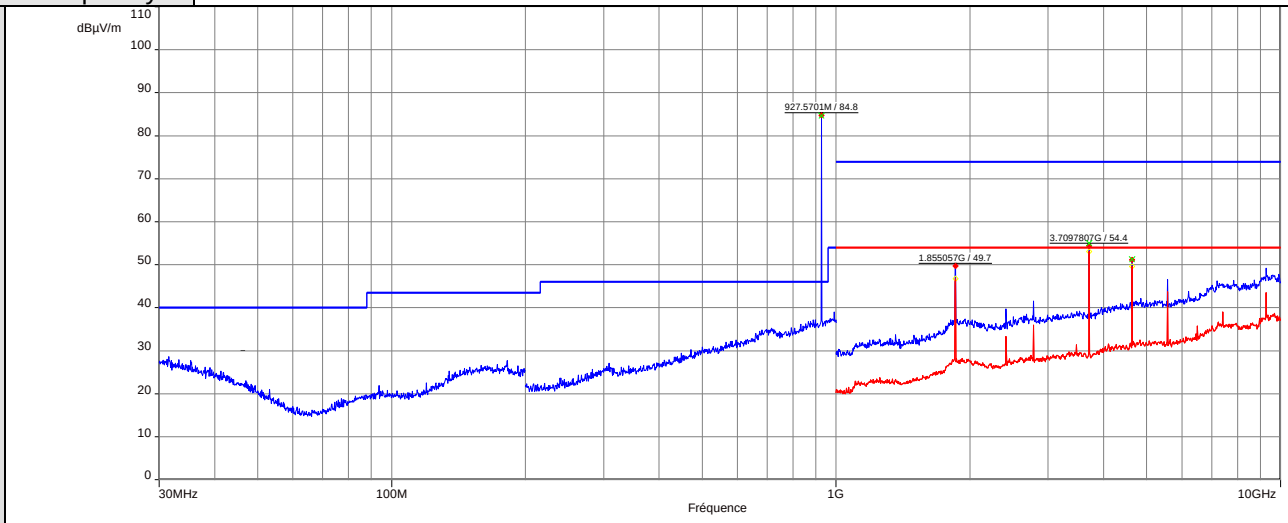


FREQ	Field level	Field level	Limit	Limit	Margin	Margin	Table angle	Ant height	Total factor	Pol	Note
MHz	(PK) dBµV /m	(AV) dBµV/m	(PK) dBµV/m	(AV) dBµV/m	(PK) dB	(AV) dB	Degree	m	dB		
1829.96391	51.04	49.35	74.00	54.00	**-22.96**	**-4.65**	253.10	2.00	-6.02	H	Pass
3659.89562	54.32	52.70	74.00	54.00	**-19.68**	**-1.30**	360.00	1.51	-4.05	H	Pass
4575.12918	51.64	48.93	74.00	54.00	**-22.36**	**-5.07**	285.80	1.18	-0.91	H	Pass
5489.8465	54.01	51.66	74.00	54.00	**-19.99**	**-2.34**	161.90	1.36	0.38	H	Pass
3659.9024	48.19	44.58	74.00	54.00	**-25.81**	**-9.42**	172.50	1.09	-4.05	V	Pass
4574.90191	53.56	51.05	74.00	54.00	**-20.44**	**-2.95**	237.30	1.77	-0.91	V	Pass
5489.86264	54.25	51.76	74.00	54.00	**-19.75**	**-2.24**	168.00	1.09	0.86	V	Pass
RBW :			100kHz < 1GHz and 1MHz > 1GHz.								
Final measurement detector:			Quasi-Peak below 1GHz. Peak and CISPR Average above 1Ghz.								

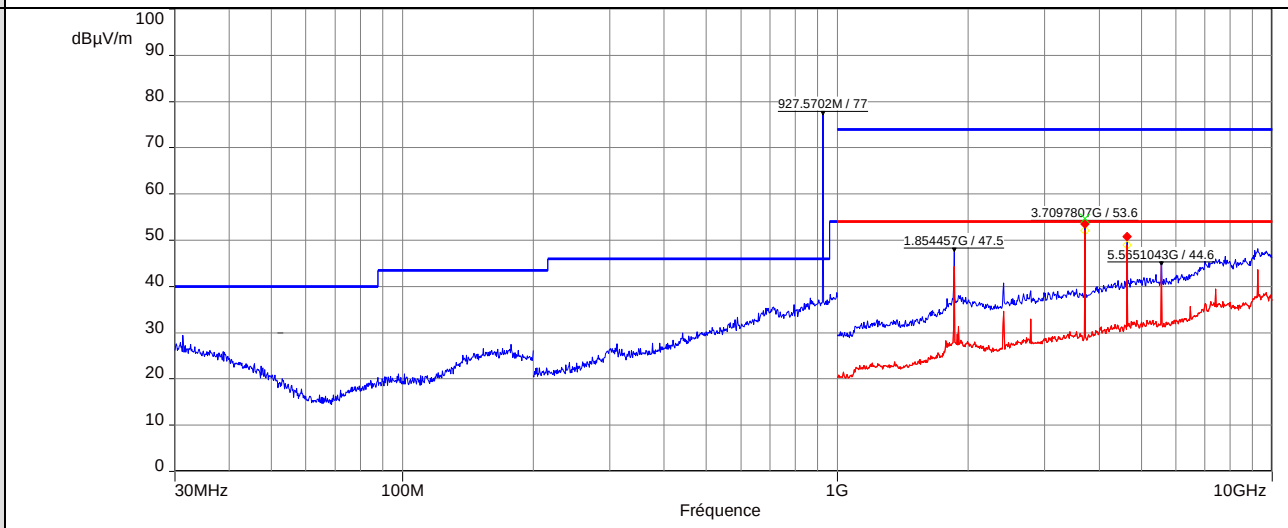
Graphical representation of Radiated Disturbance Measurement (Peak detection, Full Anechoic Chamber pre-scan, 30MHz-10GHz / 3m / Transmit mode / Worst position)
IDS1013

Center frequency: 927.5 MHz

HORIZONTAL POLARIZATION



VERTICAL POLARIZATION

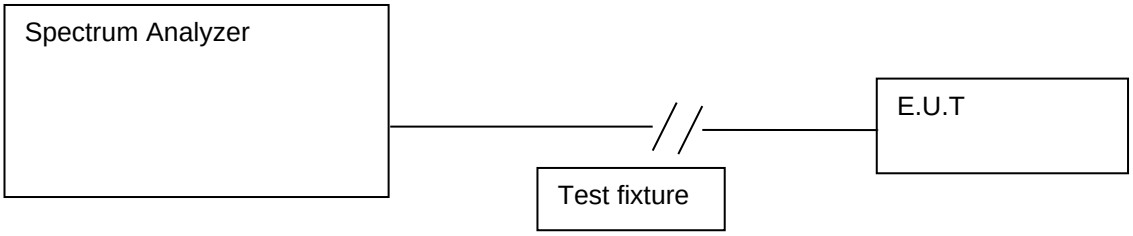


FREQ	Field level	Field level	Limit	Limit	Margin	Margin	Table angle	Ant height	Total factor	Pol	Note
MHz	(PK) dBµV /m	(AV) dBµV/m	(PK) dBµV/m	(AV) dBµV/m	(PK) dB	(AV) dB	Degree	m	dB		
1855.057	49.71	46.75	74.00	54.00	**-24.29**	**-7.15**	91.3	1.0	-6.07	H	Pass
3709.9893	55.04	53.44	74.00	54.00	**-18.96**	**-0.56**	342.90	1.09	-4.10	H	Pass
4637.4316	55.05	52.64	74.00	54.00	**-18.95**	**-1.36**	203.00	1.44	-0.60	H	Pass
3709.9185	54.74	53.12	74.00	54.00	**-19.26**	**-0.88**	359.10	1.16	-4.10	V	Pass
4637.65289	54.12	52.12	74.00	54.00	**-19.88**	**-1.88**	341.00	1.44	-1.20	V	Pass
RBW :			100kHz < 1GHz and 1MHz > 1GHz.								
Final measurement detector:			Quasi-Peak below 1GHz. Peak and CISPR Average above 1Ghz.								

11. Occupied bandwidth (99%)

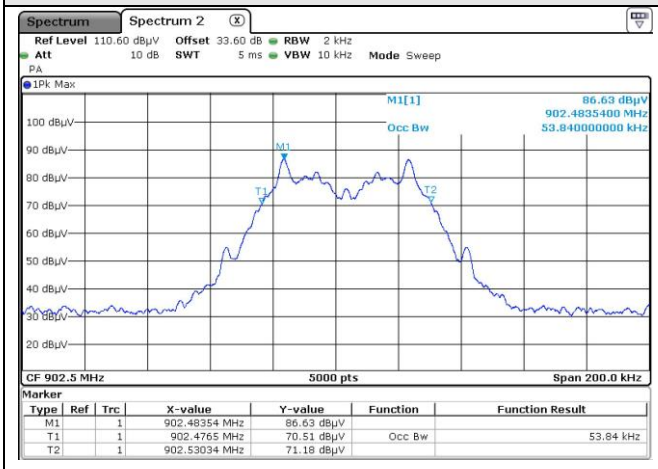
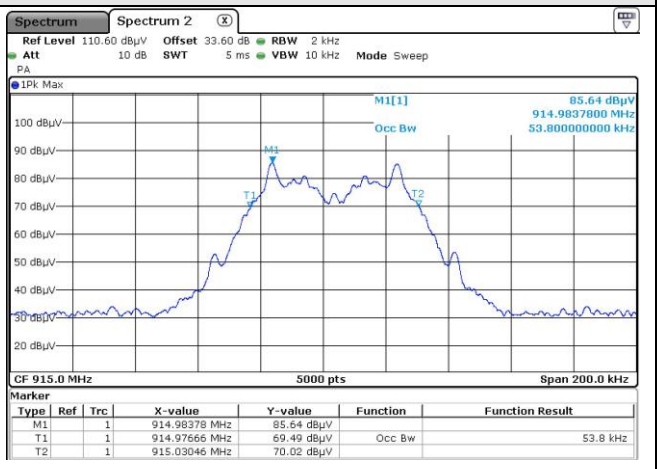
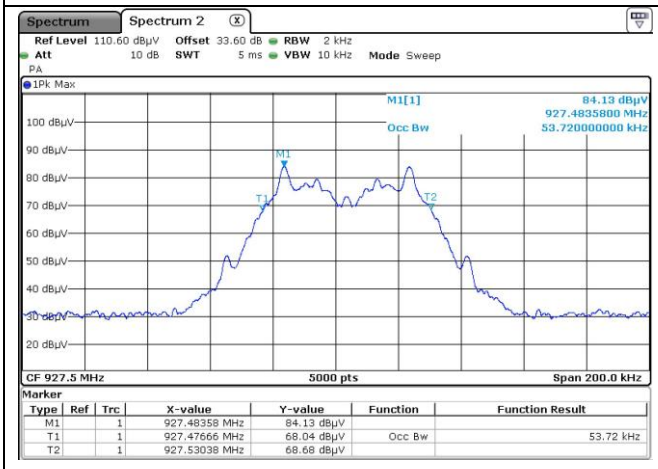
TEST: Occupied bandwidth (99%) / RSS-GEN		**Verdict**
Method: The setup is in an anechoic chamber. The spectrum analyzer is connected to the measuring antenna. A radiated measurement is performed. The RBW is set in the range of 1% to 5% of the occupied bandwidth, with VBW ≥ 3 x RBW. The SPAN is wide enough to capture all products of the modulation process. A Peak detector is used. Measure is performed with OBW 99% function of the spectrum analyser. The tested equipment is set to transmit operation with modulation on low, mid and high channels.		**Pass**
Laboratory Parameters:	Required prior to the test	During the test
Ambient Temperature	20 to 30 °C	22°C ± 2
Relative Humidity	30 to 70 %	45% ± 5
Supplementary information: Test location: SMEE Test date: May 24th, 2023. Tested by C. KRMICHE.		

Test Setup for radiated emission (Test fixture)

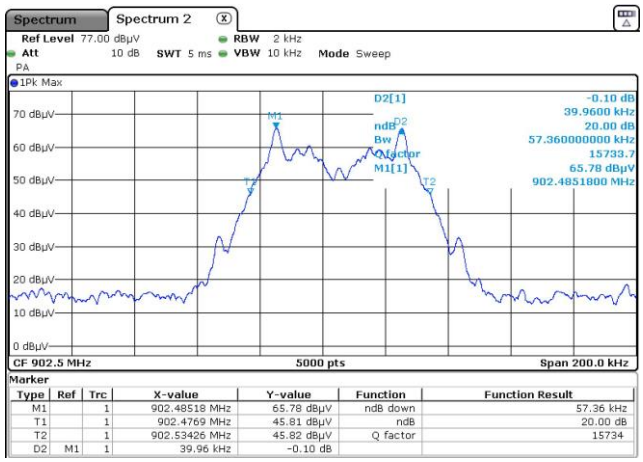
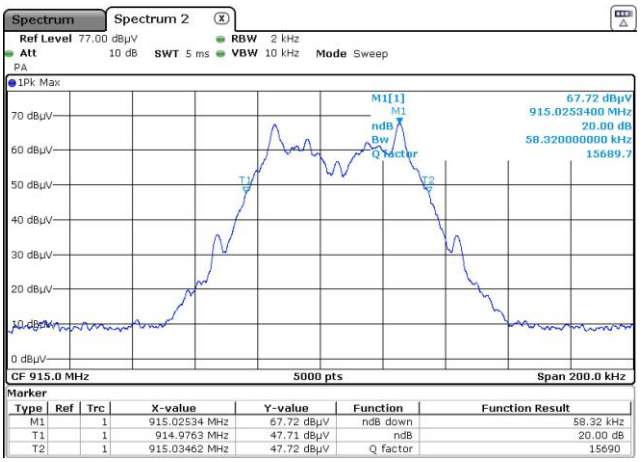
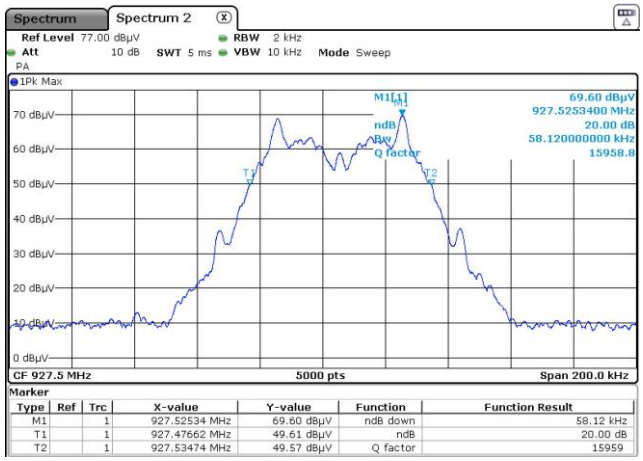


Tabulated Results for Occupied Bandwidth (IDS1010 / IDS1013)	
Frequency (MHz)	**99% Occupied Bandwidth** (kHz)
902.5	53.84
915.0	53.80
927.5	53.72

Tabulated Results for Occupied Bandwidth (IDS1010 / IDS1013)	
Frequency (MHz)	**20dB Bandwidth** (kHz)
902.5	57.4
915.0	58.3
927.5	58.1

Graphical representation of 99% Occupied Bandwidth	
 Low Channel	 High Channel
 Middle Channel	

Frequency band investigated:	902 to 928MHz
RBW / VBW :	2kHz / 10kHz
Measurement detector:	Peak / Max hold

Graphical representation of 20dB Occupied Bandwidth	
 Low Channel	 High Channel
 Middle Channel	

Frequency band investigated:	902 to 928MHz
RBW / VBW :	2kHz / 10kHz
Measurement detector:	Peak / Max hold

12. Test Equipment List

Description	Manufacturer	Model	ID	Date Cal.	Nxt. Cal.
Log-periodic antenna	EMCO	3146	ANT-191-019	2021/7	2024/1
Biconnic antenna	COM-POWER	AB- 900A	ANT-201-021	2023/01	2025/1
Horn antenna	COM-POWER	AH-118	ANT-101-004	2021/7	2024/7
High-Pass filter	Wainwright Inst.	HK6-948-1200	FIL-141-004	2023/4	2024/4
RF cable	HUBER+SUHNER	SF126E / 2m	CAB-231-043	2023/4	2024/4
RF cable	HUBER+SUHNER	SF104E / 5.3m	CAB-231-044	2023/4	2024/4
RF cable	HUBER+SUHNER	SF126E / 7m	CAB-231-045	2023/4	2024/4
Semi anechoic room	COMTEST	218292	CAG-201-002	2022/4	2025/2
Antenna mast	Innco- Systems	MA4640-XP-ET	MAT-201-002	-	-
Turntable	Innco- Systems	CT0800	PLA-141-001	-	-
Turntable	Innco- Systems	DS1500-S-1t	PLA-201-003	-	-
Pre-amplifier	COM-POWER	1-18GHz	PRE-221-005	2023/4	2024/4
Measuring Rec	Rohde&Schwarz	ESRP	REC-151-002	2021/9	2024/3
Spectrum analyzer	Rohde&Schwarz	FSV40	ASP-171-004	2021/10	2024/4
EMC Software	NEXIO	BAT EMC	SOF-101-001	-	-
Ref. Comb generator	SMEE	EMR-10M	REF-111-002	-	-
Ref. Comb generator	SMEE	EMR 1-6GHz	REF-141-003	-	-

END OF REPORT