FCC Test Report

FCC ID	:	**PPQ-L-WC-01-IP65**
Equipment	:	**Locix Outdoor HD Camera**
Brand Name	:	**LOCIX**
Model Name	:	**L-WC-01-110-IP65, L-WC-01-40-IP65**
Applicant	:	**LITE-ON Technology Corp. Bldg. C, 90, Chien 1 Road, Chung Ho, New Taipei City 23585, Taiwan, R.O.C**
Manufacturer	:	**LITE-ON Network Communication (Dongguan) Limited 30#Keji Rd.,Yin Hu Industrial Area,Qingxi Town, DongGuan City,Guangdong,China**
Standard	:	**47 CFR FCC Part 15.247**

The product was received on Sep. 05, 2018, and testing was started from Sep. 13, 2018 and completed on Sep. 19, 2018. . We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

Table of Contents

History of this test report

Report No.	Version	Description	Issued Date
FR870201-01AF	01	Initial issue of report	Oct. 08, 2018
FR870201-01AF	02	Update Description of EUT's material in 1.1.5 section. This report is the latest version replacing for the report issued on Oct. 08, 2018	Oct. 11, 2018

Summary of Test Result

Report Clause	Ref. Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	FCC 15.203
3.1	15.207	AC Power-line Conducted Emissions	Not Required	FCC 15.207
3.2	15.247(a)	DTS Bandwidth	PASS	≥500kHz
3.3	15.247(b)	Maximum Conducted Output Power	PASS	Power [dBm]:30
3.4	15.247(e)	Power Spectral Density	PASS	PSD [dBm/3kHz]:8
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	Non-Restricted Bands: > 30 dBc
3.6	15.247(d)	Emissions in Restricted Frequency Bands	PASS	Restricted Bands: FCC 15.209

Reviewed by: Sam Tsai

Report Producer: Amber Chiu

General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	Modulation	Ch. Frequency (MHz)	Channel Number
902-928	2-GFSK	923.6-927.6	5

Band	Mode	BWch (MHz)	Nant
902-928MHz	GFSK	0.5	1TX

Note:
- 902-928 MHz Band uses a combination of 2-GFSK modulation.
- BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector
1	Lite-on	3010001111L7	Dipole antenna	I-PEX

Ant.	Port	Gain (dBi)
		923-928MHz
1	1	1.34

Note 1: The EUT has one antenna.

For 923-928MHz function:

Ant. 1 (port 1) could transmit/receive simultaneously.

1.1.3 EUT Information

Identify EUT				
RF Chip	TI/CC1310			
Operational Condition				
EUT Power Type	From Battery			
EUT Function	☒	Point-to-multipoint	☐	Point-to-point
Type of EUT				
☒	Stand-alone			
☐	Combined (EUT where the radio part is fully integrated within another device)			
	Combined Equipment - Brand Name / Model No.:	…		
☐	Plug-in radio (EUT intended for a variety of host systems)			
	Host System - Brand Name / Model No.:	…		
☐	Other:			

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
GFSK	1	0	n/a (DC>=0.98)	n/a (DC>=0.98)

1.1.5 Table for Multiple Listing

The brand/model names in the following table are all refer to the identical product.

Brand Name	Model Name	Description
LOCIX	L-WC-01-110-IP65	All models are identical, including the material. The differences are the enclosure and the number of parts on the IR LED.
	L-WC-01-40-IP65	

Note : The model : L-WC-01-110-IP65 was chosen and measured during the test.

1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR FCC Part 15
- ANSI C63.10-2013
- KDB 558074 D01 v05

1.3 Testing Location Information

Testing Location			
☒	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)	
		TEL : 886-3-327-3456	FAX : 886-3-327-0973
Test site Designation No. TW1190 with FCC.			
☐	JHUBEI	ADD : No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County, Taiwan (R.O.C.)	
		TEL : 886-3-656-9065	FAX : 886-3-656-9085
Test site Designation No. TW0006 with FCC.			

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-HY	Andy Lee	23.5°C / 65%	19/Sep/2018
Radiated	03CH09-HY	Andy Hsu	23.8°C / 62%	19/Sep/2018

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.9 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.3 dB	Confidence levels of 95%
Temperature	0.7 ℃	Confidence levels of 95%
Humidity	4 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Condition

RF Conducted	Abbreviation	Remark
RF Conducted-DTS	Abbreviation	Remark
TnomVnom	Tnom	20°C
-	Vnom	3V

2.2 Test Channel Mode

Test Software Version	Setup_SmartRF_Studio_7-2.9.0

Mode	PowerSetting
GFSK	-
923.6MHz	11
925.6MHz	11
927.6MHz	3

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	DTS Bandwidth Maximum Conducted Output Power Power Spectral Density Emissions in Non-restricted Frequency Bands
Test Condition	Conducted measurement at transmit chains

The Worst Case Mode for Following Conformance Tests			
Tests Item	Emissions in Restricted Frequency Bands		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
Operating Mode < 1GHz	CTX		
1	Battery Mode		
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	**X Plane**	**Y Plane**	**Z Plane**
			
Worst Planes of EUT			V

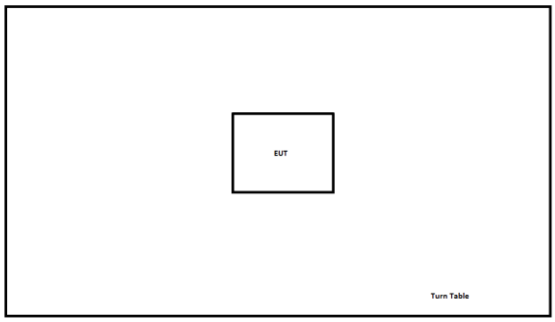
2.4 Support Equipment

Support Equipment – RF Conducted				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	Notebook	DELL	E5410	DoC
2	Adapter for NB	DELL	HA65NM130	DoC
3	DC Power Supply	GW	GPS-3030DD	-

Support Equipment – Radiated Emission				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	Battery	-	-	-

2.5 Test Setup Diagram

Test Setup Diagram - Radiated Test



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	**Quasi-Peak**	**Average**
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.1.2 Measuring Instruments

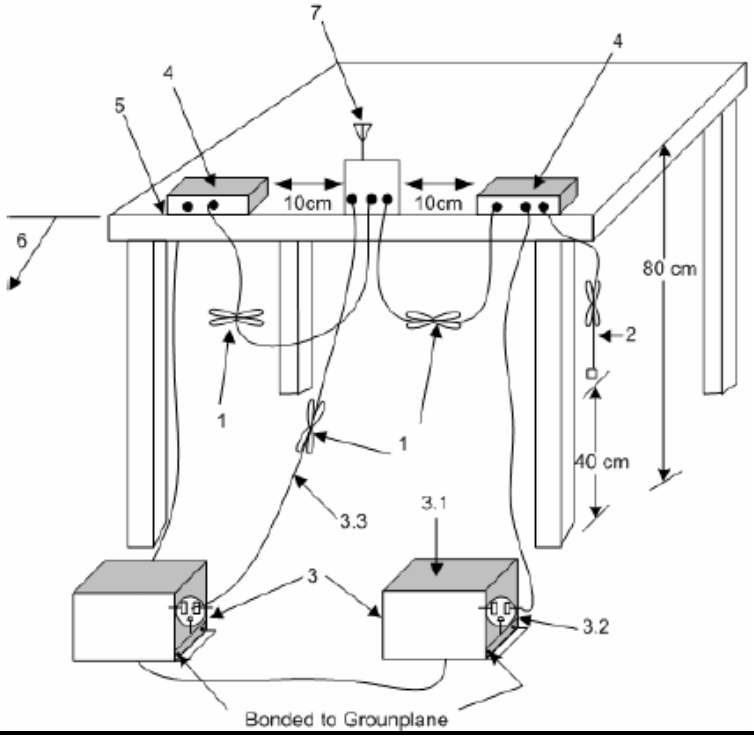
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method
☒ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup

AC Power-line Conducted Emissions



3.1.5 Test Result of AC Power-line Conducted Emissions

Please refer to FCC 15.207 which states, “Measurements to demonstrate compliance with the conducted limits are not required for devices employ battery for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines”.
Therefore, for this device, AC Power Line Conducted Emissions investigation is not required.

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit
Systems using digital modulation techniques:
▪ 6 dB bandwidth ≥ 500 kHz.

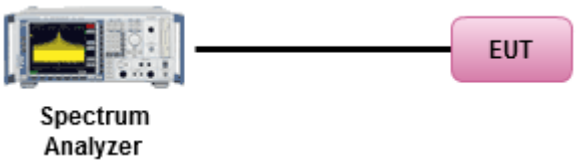
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

Test Method	
▪ For the emission bandwidth shall be measured using one of the options below:	
	☒ Refer as KDB 558074. clause 8.2 (11.9.2.2 of ANSI C63.10) DTS bandwidth measurement.
	☐ Refer as RSS-Gen, clause 6.7 for for occupied bandwidth testing.
	☐ Refer as ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.

3.2.4 Test Setup

Emission Bandwidth


3.2.5 Test Result of Emission Bandwidth

Refer as Appendix A

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit		
	▪ If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)	
	▪ Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)$ dBm	
	▪ Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm	
	▪ Smart antenna system (SAS):	
		- Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm
		- Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm
		- Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3 + 8$dB dBm
e.i.r.p. Power Limit:		
▪ 2400-2483.5 MHz Band		
	▪ Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)	
	▪ Point-to-point systems (P2P): $P_{eirp} \leq MAX(36, [P_{Out} + G_{TX}])$ dBm	
	▪ Smart antenna system (SAS)	
		- Single beam: $P_{eirp} \leq MAX(36, P_{Out} + G_{TX})$ dBm
		- Overlap beam: $P_{eirp} \leq MAX(36, P_{Out} + G_{TX})$ dBm
		- Aggregate power on all beams: $P_{eirp} \leq MAX(36, [P_{Out} + G_{TX} + 8])$ dBm
P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, **G_{TX}** = the maximum transmitting antenna directional gain in dBi.		

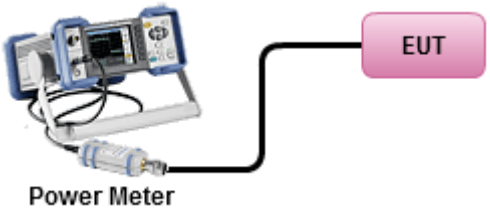
3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

Test Method	
▪ Maximum Peak Conducted Output Power	
☐	Refer as KDB 558074, clause 8.3.1.1 (11.9.1.1 of ANSI C63.10) RBW ≥ EBW method.
☐	Refer as KDB 558074, clause 8.3.1.2 (11.9.1.2 of ANSI C63.10) integrated band power method.
☐	Refer as KDB 558074, clause 8.3.1.3 (11.9.1.3 of ANSI C63.10) peak power meter.
▪ Maximum Average Conducted Output Power	
☐	Refer as KDB 558074, clause 8.3.2.2 (11.9.2.2 of ANSI C63.10) using a spectrum analyzer.
☒	Refer as KDB 558074, clause 8.3.2.3 (11.9.2.3 of ANSI C63.10) using a power meter.
▪ For conducted measurement.	
	▪ If the EUT supports multiple transmit chains using options given below: Refer as KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.
	▪ If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \ldots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

3.3.4 Test Setup

Maximum Conducted Output Power (Power Meter)


3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix B

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit
▪ Power Spectral Density (PSD) ≤ 8 dBm/3kHz

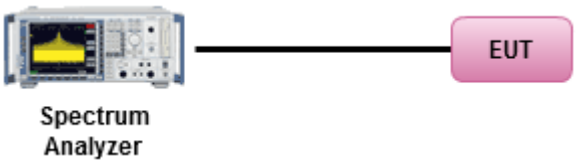
3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

Test Method		
▪ Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).		
	☒ Refer as KDB 558074, clause 8.4 (11.10 of ANSI C63.10) Method PKPSD.	
▪ For conducted measurement.		
	▪ If The EUT supports multiple transmit chains using options given below:	
		▪ Measure and sum the spectra across the outputs. Refer as KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.

3.4.4 Test Setup

Power Spectral Density


3.4.5 Test Result of Power Spectral Density

Refer as Appendix C

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	**Limit (dB)**
Peak output power procedure	20
Average output power procedure	30
Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level. Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.	

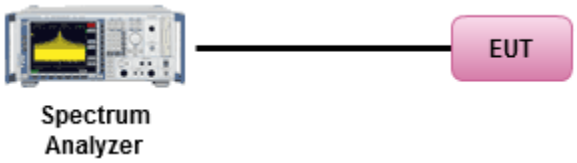
3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method
▪ Refer as KDB 558074, clause 8.5 (11.11 of ANSI C63.10) for non-restricted frequency bands.

3.5.4 Test Setup

Emissions in Non-restricted Frequency Bands


3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix D

3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

Restricted Band Emissions Limit			
Frequency Range (MHz)	**Field Strength (uV/m)**	**Field Strength (dBuV/m)**	**Measure Distance (m)**
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

3.6.2 Measuring Instruments

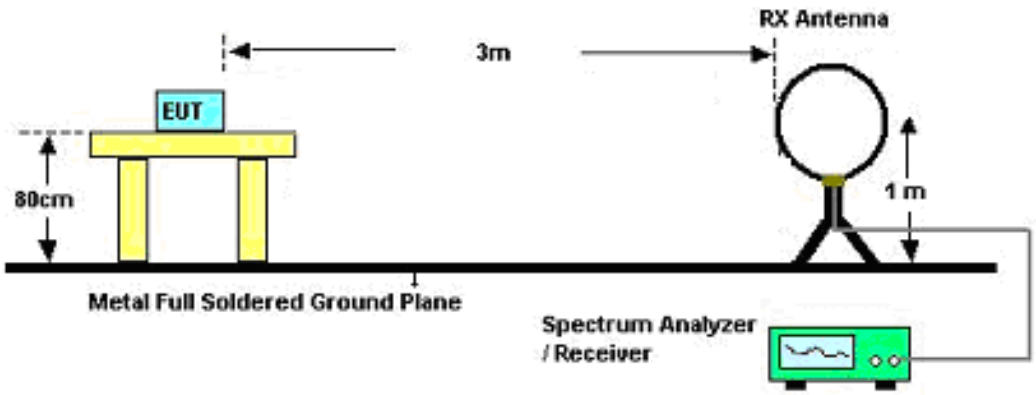
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

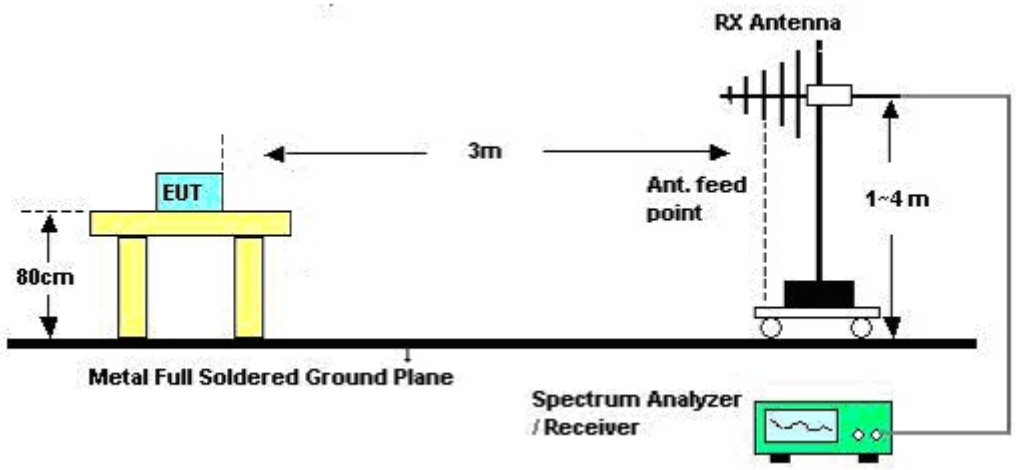
Test Method	
▪ The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].	
▪ Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
▪ For the transmitter unwanted emissions shall be measured using following options below:	
	▪ Refer as KDB 558074, clause 8.6 (11.12 of ANSI C63.10) for restricted frequency bands.
▪ For the transmitter band-edge emissions shall be measured using following options below:	
	▪ Refer as KDB 558074 clause 8.7.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below.
	▪ Refer as KDB 558074, clause 8.7.2 (6.10.6 of ANSI C63.10) for marker-delta method for band-edge measurements.
	▪ Refer as KDB 558074, clause 8.7.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).

3.6.4 Test Setup

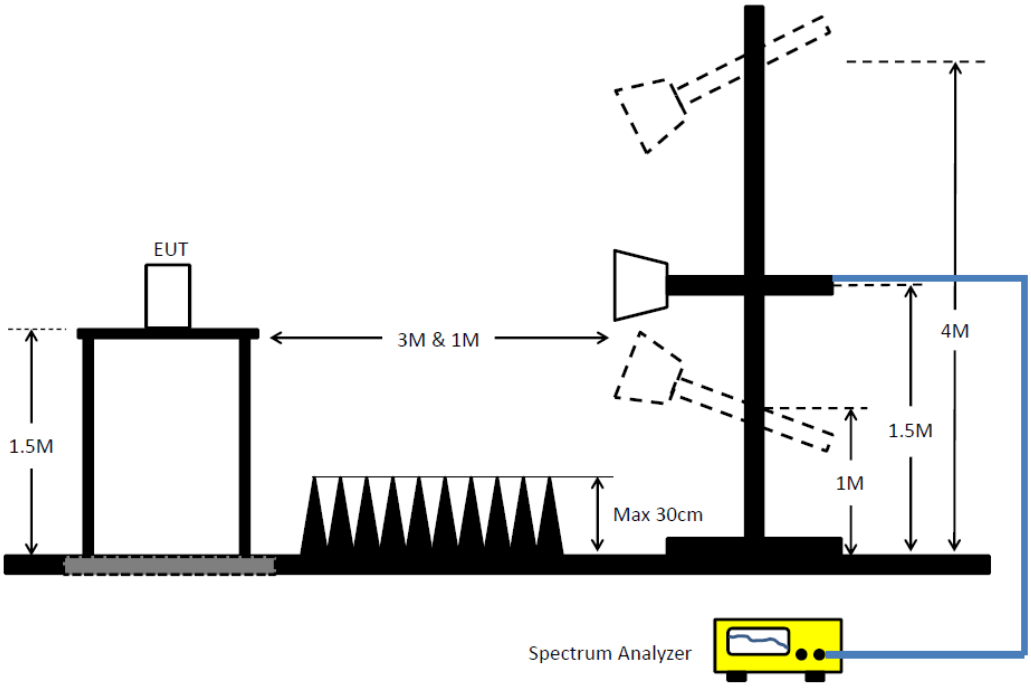
Transmitter Radiated Emissions
9kHz ~30MHz



30MHz~1GHz



Above 1GHz



3.6.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

3.6.6 Test Result of Transmitter Radiated Unwanted Emissions

Refer as Appendix E

4 Test Equipment and Calibration Data

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz ~ 1GHz	23/Apr/2018	22/Apr/2019
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz ~ 18GHz	14/Jun/2018	13/Jun/2019
Microwave Preamplifier	Agilent	8449B	3008A02096	1GHz ~ 26.5GHz	10/May/2018	09/May/2019
Amplifier	EMC	EMC9135	980232	9KHz~1GHz	27/Apr/2018	26/Apr/2019
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz ~ 44GHz	31/Jul/2018	30/Jul/2019
Bilog Antenna & 6dB Attenuator	SCHAFFNER/Yi Chang	CBL6111C / MTJ61202	2724 / MTJ61202-06	30MHz~1GHz	07/Jul/2018	06/Jul/2019
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA9120 D 1534	1GHz~18GHz	30/Apr/2018	29/Apr/2019
Loop Antenna	TESEQ	HLA 6120	31244	9k-30MHz	29/Mar/2018	28/Mar/2019
RF Cable-R03m	Jye Bao	RG142	CB031	9kHz ~ 1GHz	1/Feb/2018	31/Jan/2019
RF Cable-high	HUBER+SUHNER	SUCOFLEX104	SN 556626/4 + 556627	1GHz ~ 40GHz	14/Mar/2018	13/Mar/2019

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV40	101500	10Hz ~ 40GHz	18/Jul/2018	17/Jul/2019
Power Sensor	Anritsu	MA2411B	1339407	300MHz ~ 40GHz	06/Nov/2017	05/Nov/2018
Power Meter	Anritsu	ML2495A	1517010	300MHz ~ 40GHz	06/Nov/2017	05/Nov/2018
RF Cable-1.5m	HUBER+SUHNER	SUCOFLEX_104	MY12585/4	30MHz ~ 26.5GHz	26/Jan/2018	25/Jan/2019
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10710/4	30MHz ~ 26.5GHz	26/Jan/2018	25/Jan/2019
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10709/4	30MHz ~ 26.5GHz	26/Jan/2018	25/Jan/2019
Signal Generator	R&S	SMB100A	175727	100kHz~40GHz	26/Oct/2017	25/Oct/2018

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
902-928MHz	-	-	-	-	-
GFSK	529.375k	645.927k	646KF1D	516.875k	565.342k

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

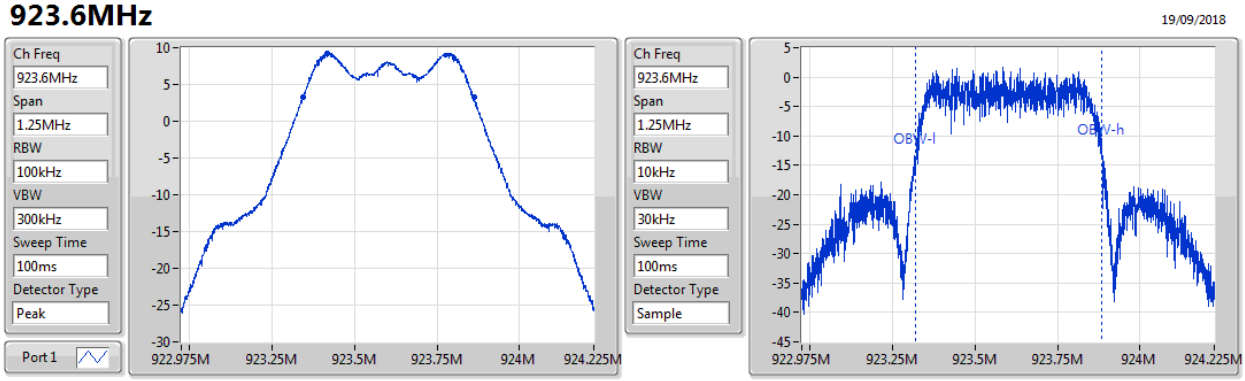
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
GFSK	-	-	-	-
923.6MHz_TnomVnom	Pass	500k	516.875k	565.342k
925.6MHz_TnomVnom	Pass	500k	529.375k	645.927k
927.6MHz_TnomVnom	Pass	500k	523.75k	622.814k

Port X-N dB = Port **X** 6dB down bandwidth; **Port X-OBW** = Port **X** 99% occupied bandwidth;

GFSK **EBW**

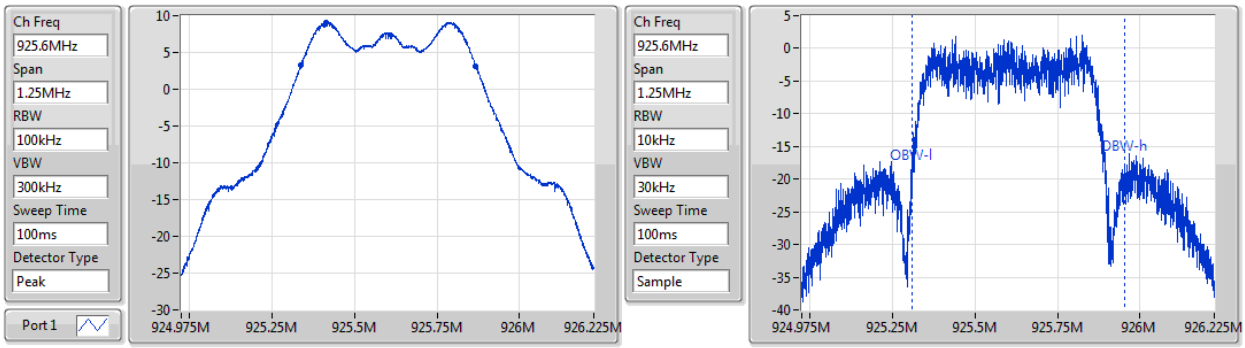
923.6MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
516.875k	923.344375M	923.86125M	565.342k	923.318891M	923.884233M	500k	1

GFSK **EBW**

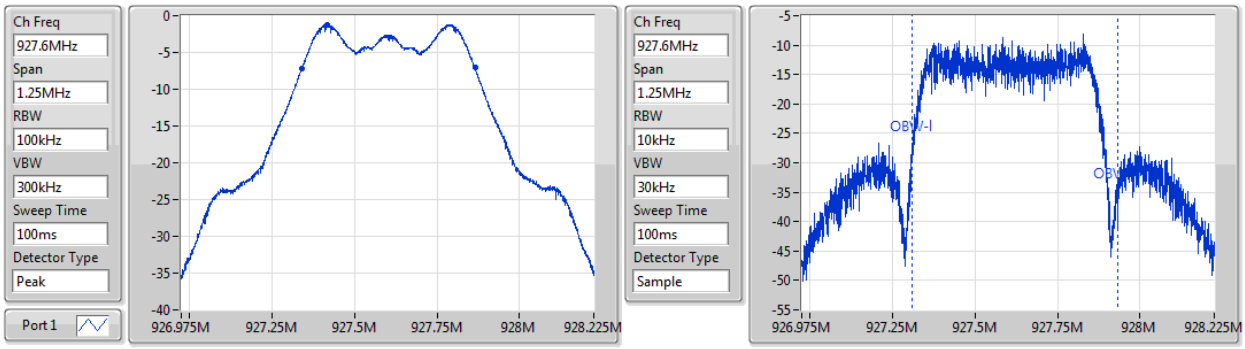
925.6MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
529.375k	925.338125M	925.8675M	645.927k	925.307646M	925.953573M	500k	1

GFSK **EBW**

927.6MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
523.75k	927.34125M	927.865M	622.814k	927.31077M	927.933583M	500k	1

Summary

Mode	Power	Power
	(dBm)	(W)
902-928MHz	-	-
GFSK	9.90	0.00977

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
GFSK	-	-	-	-
923.6MHz_TnomVnom	Pass	1.34	9.90	30.00
925.6MHz_TnomVnom	Pass	1.34	9.82	30.00
927.6MHz_TnomVnom	Pass	1.34	-0.71	30.00

Summary

Mode	PD (dBm/RBW)
902-928MHz	-
GFSK	-3.74

RBW=3kHz.

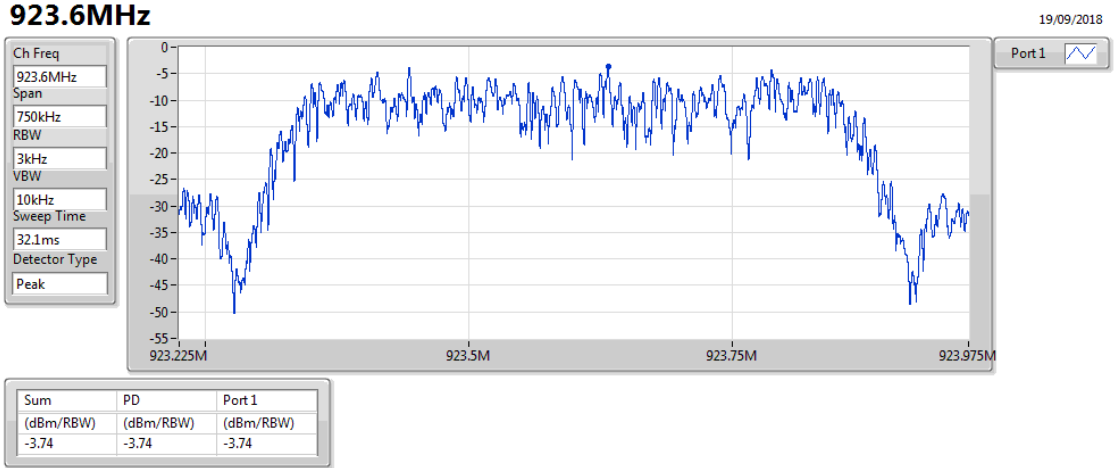
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
GFSK	-	-	-	-
923.6MHz_TnomVnom	Pass	1.34	-3.74	8.00
925.6MHz_TnomVnom	Pass	1.34	-3.98	8.00
927.6MHz_TnomVnom	Pass	1.34	-14.39	8.00

RBW=3kHz.

GFSK **PSD**

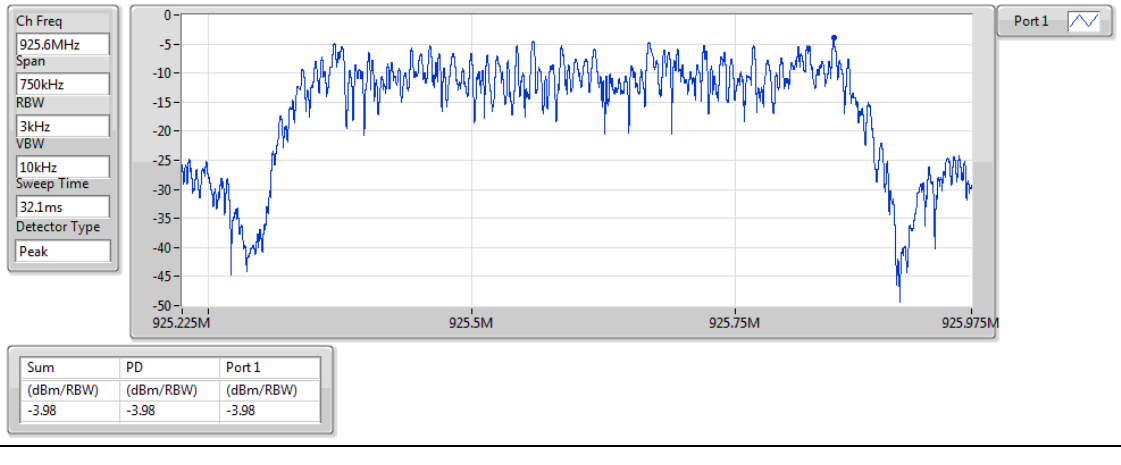
923.6MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-3.74	-3.74	-3.74

GFSK **PSD**

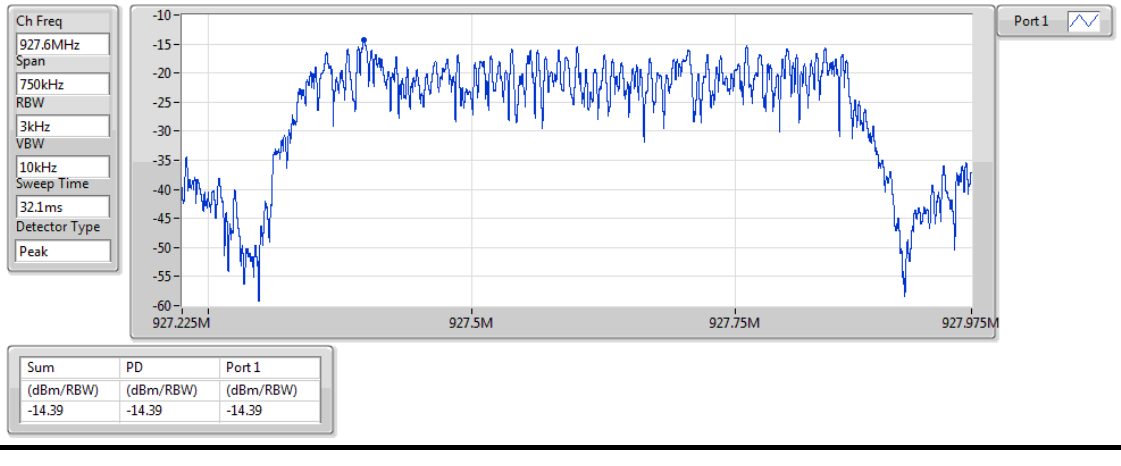
925.6MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-3.98	-3.98	-3.98

GFSK **PSD**

927.6MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-14.39	-14.39	-14.39

Summary

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
902-928MHz	-	-	-	-	-	-	-	-	-	-	-	-	-
GFSK	Pass	923.476M	8.94	-21.06	463.758M	-51.28	901.46M	-56.17	928.002M	-21.28	6.970286G	-48.00	1

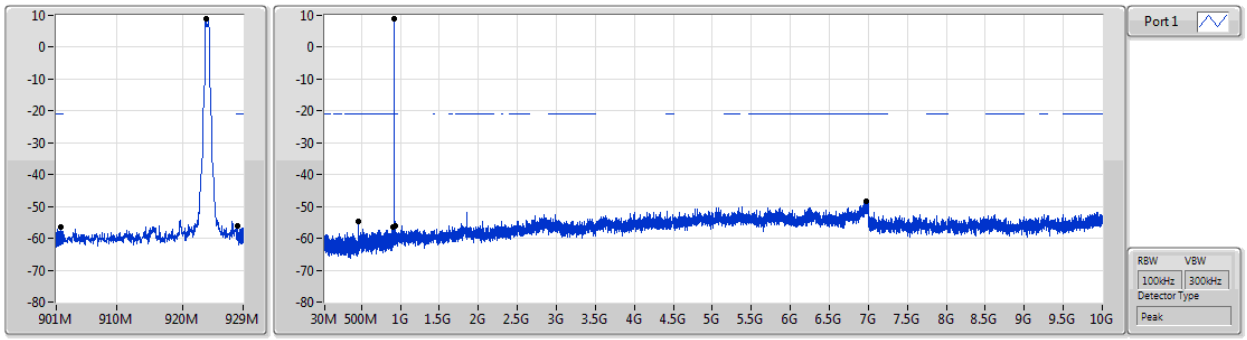
Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
GFSK	-	-	-	-	-	-	-	-	-	-	-	-	-
923.6MHz_TnomVnom	Pass	923.476M	8.94	-21.06	462.016M	-54.60	901.704M	-56.46	928.17M	-56.12	6.97142G	-48.27	1
925.6MHz_TnomVnom	Pass	923.476M	8.94	-21.06	462.887M	-55.06	901.796M	-57.13	928.038M	-55.07	6.998633G	-47.65	1
927.6MHz_TnomVnom	Pass	923.476M	8.94	-21.06	463.758M	-51.28	901.46M	-56.17	928.002M	-21.28	6.970286G	-48.00	1

GFSK **CSE NdB**

923.6MHz

19/09/2018

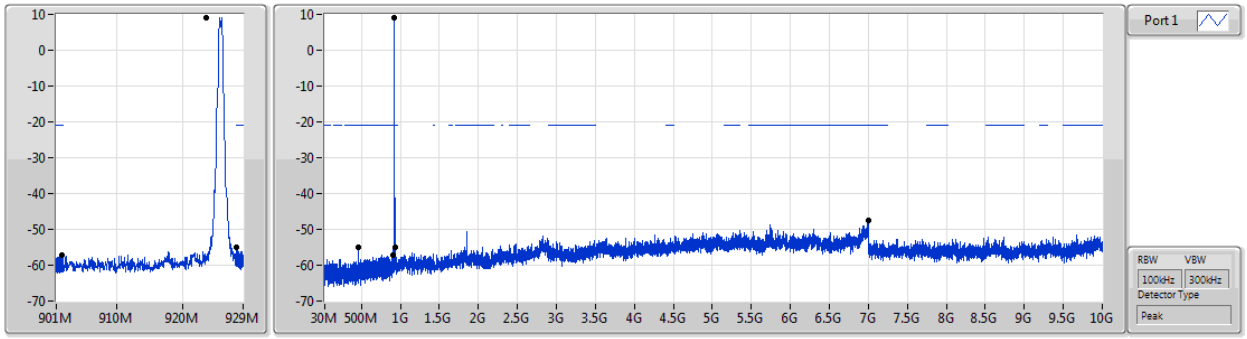


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
923.476M	8.94	-21.06	462.016M	-54.60	901.704M	-56.46	928.17M	-56.12	6.97142G	-48.27	1

GFSK **CSE NdB**

925.6MHz

19/09/2018

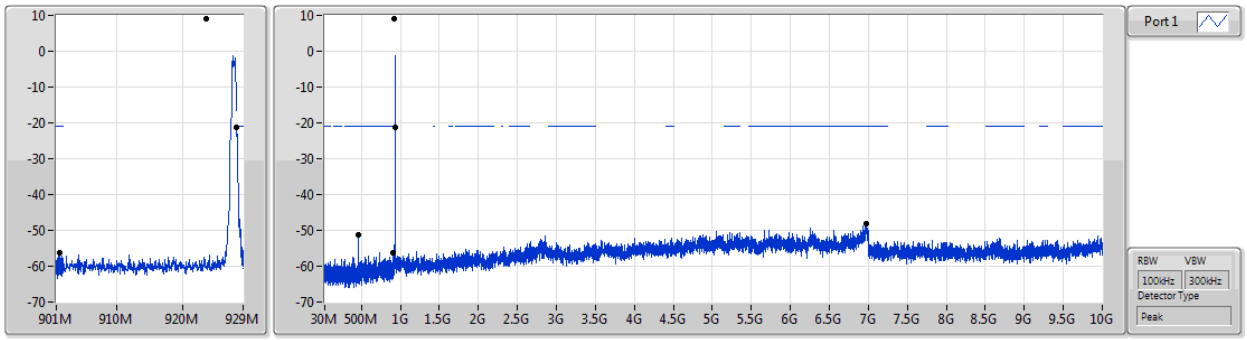


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
923.476M	8.94	-21.06	462.887M	-55.06	901.796M	-57.13	928.038M	-55.07	6.998633G	-47.65	1

GFSK **CSE NdB**

927.6MHz

19/09/2018



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
923.476M	8.94	-21.06	463.758M	-51.28	901.46M	-56.17	928.002M	-21.28	6.970286G	-48.00	1

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
902-928MHz	-	-	-	-	-	-	-	-	-	-	-	-
GFSK	Pass	PK	59.1M	33.38	40.00	-6.62	-25.56	3	Horizontal	360	1.00	-

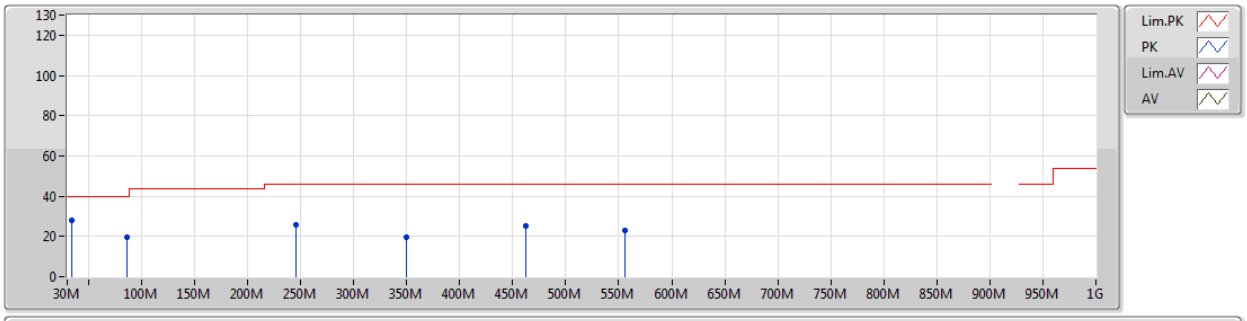
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
GFSK	-	-	-	-	-	-	-	-	-	-	-	-
923.6MHz	Pass	PK	33.88M	28.25	40.00	-11.75	-15.32	3	Vertical	0	1.00	-
923.6MHz	Pass	PK	86.26M	19.41	40.00	-20.59	-23.13	3	Vertical	0	1.00	-
923.6MHz	Pass	PK	245.34M	25.61	46.00	-20.39	-17.84	3	Vertical	0	1.00	-
923.6MHz	Pass	PK	350.1M	19.49	46.00	-26.51	-15.49	3	Vertical	0	1.00	-
923.6MHz	Pass	PK	462.62M	25.08	46.00	-20.92	-12.67	3	Vertical	0	1.00	-
923.6MHz	Pass	PK	555.74M	23.00	46.00	-23.00	-10.66	3	Vertical	0	1.00	-
923.6MHz	Pass	PK	53.28M	25.04	40.00	-14.96	-24.56	3	Horizontal	360	1.00	-
923.6MHz	Pass	PK	101.78M	23.31	43.50	-20.19	-20.87	3	Horizontal	360	1.00	-
923.6MHz	Pass	PK	274.44M	31.29	46.00	-14.71	-16.69	3	Horizontal	360	1.00	-
923.6MHz	Pass	PK	319.06M	30.57	46.00	-15.43	-16.42	3	Horizontal	360	1.00	-
923.6MHz	Pass	PK	353.98M	25.18	46.00	-20.82	-15.39	3	Horizontal	360	1.00	-
923.6MHz	Pass	PK	462.62M	29.54	46.00	-16.46	-12.67	3	Horizontal	360	1.00	-
927.6MHz	Pass	PK	57.16M	25.73	40.00	-14.27	-25.37	3	Vertical	0	1.00	-
927.6MHz	Pass	PK	218.18M	25.91	46.00	-20.09	-20.92	3	Vertical	0	1.00	-
927.6MHz	Pass	PK	266.68M	28.31	46.00	-17.69	-16.12	3	Vertical	0	1.00	-
927.6MHz	Pass	PK	353.98M	30.07	46.00	-15.93	-15.39	3	Vertical	0	1.00	-
927.6MHz	Pass	PK	383.08M	31.26	46.00	-14.74	-14.63	3	Vertical	0	1.00	-
927.6MHz	Pass	PK	464.56M	23.67	46.00	-22.33	-12.63	3	Vertical	0	1.00	-
927.6MHz	Pass	PK	59.1M	33.38	40.00	-6.62	-25.56	3	Horizontal	360	1.00	-
927.6MHz	Pass	PK	82.38M	25.04	40.00	-14.96	-23.65	3	Horizontal	360	1.00	-
927.6MHz	Pass	PK	272.5M	23.34	46.00	-22.66	-16.54	3	Horizontal	360	1.00	-
927.6MHz	Pass	PK	317.12M	27.98	46.00	-18.02	-16.44	3	Horizontal	360	1.00	-
927.6MHz	Pass	PK	344.28M	31.88	46.00	-14.12	-15.64	3	Horizontal	360	1.00	-
927.6MHz	Pass	PK	501.42M	31.65	46.00	-14.35	-12.09	3	Horizontal	360	1.00	-

GFSK

13/09/2018

923.6MHz_Battery

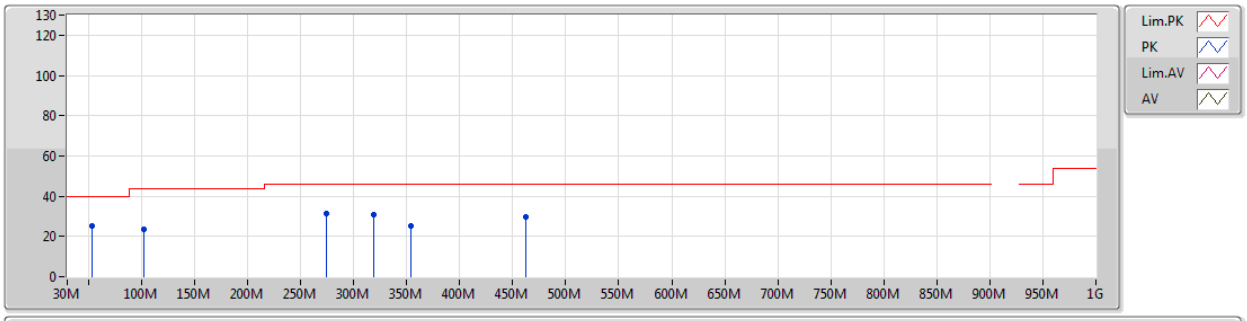


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	33.88M	28.25	40.00	-11.75	-15.32	3	Vertical	0	1.00	-
PK	86.26M	19.41	40.00	-20.59	-23.13	3	Vertical	0	1.00	-
PK	245.34M	25.61	46.00	-20.39	-17.84	3	Vertical	0	1.00	-
PK	350.1M	19.49	46.00	-26.51	-15.49	3	Vertical	0	1.00	-
PK	462.62M	25.08	46.00	-20.92	-12.67	3	Vertical	0	1.00	-
PK	555.74M	23.00	46.00	-23.00	-10.66	3	Vertical	0	1.00	-

GFSK

13/09/2018

923.6MHz_Battery

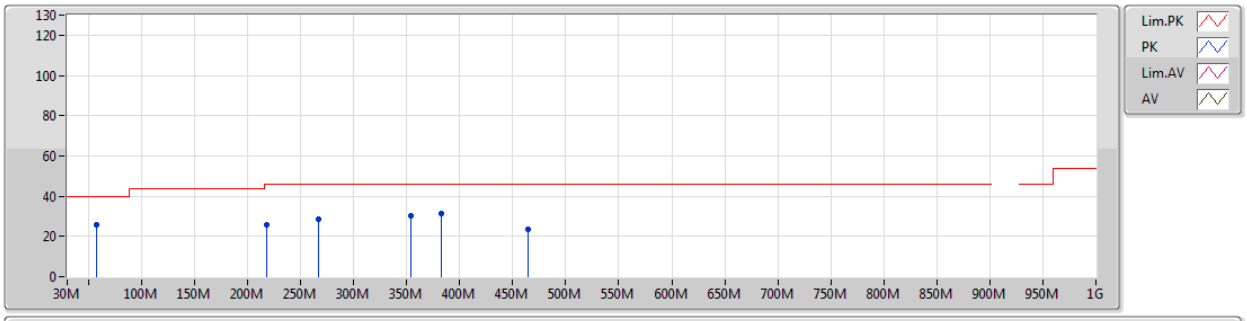


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	53.28M	25.04	40.00	-14.96	-24.56	3	Horizontal	360	1.00	-
PK	101.78M	23.31	43.50	-20.19	-20.87	3	Horizontal	360	1.00	-
PK	274.44M	31.29	46.00	-14.71	-16.69	3	Horizontal	360	1.00	-
PK	319.06M	30.57	46.00	-15.43	-16.42	3	Horizontal	360	1.00	-
PK	353.98M	25.18	46.00	-20.82	-15.39	3	Horizontal	360	1.00	-
PK	462.62M	29.54	46.00	-16.46	-12.67	3	Horizontal	360	1.00	-

GFSK

13/09/2018

927.6MHz_Battery

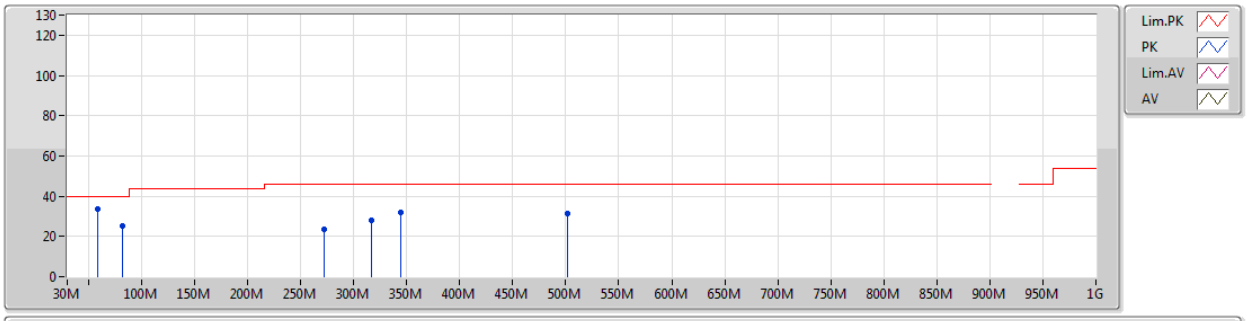


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	57.16M	25.73	40.00	-14.27	-25.37	3	Vertical	0	1.00	-
PK	218.18M	25.91	46.00	-20.09	-20.92	3	Vertical	0	1.00	-
PK	266.68M	28.31	46.00	-17.69	-16.12	3	Vertical	0	1.00	-
PK	353.98M	30.07	46.00	-15.93	-15.39	3	Vertical	0	1.00	-
PK	383.08M	31.26	46.00	-14.74	-14.63	3	Vertical	0	1.00	-
PK	464.56M	23.67	46.00	-22.33	-12.63	3	Vertical	0	1.00	-

GFSK

13/09/2018

927.6MHz_Battery



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	59.1M	33.38	40.00	-6.62	-25.56	3	Horizontal	360	1.00	-
PK	82.38M	25.04	40.00	-14.96	-23.65	3	Horizontal	360	1.00	-
PK	272.5M	23.34	46.00	-22.66	-16.54	3	Horizontal	360	1.00	-
PK	317.12M	27.98	46.00	-18.02	-16.44	3	Horizontal	360	1.00	-
PK	344.28M	31.88	46.00	-14.12	-15.64	3	Horizontal	360	1.00	-
PK	501.42M	31.65	46.00	-14.35	-12.09	3	Horizontal	360	1.00	-

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
902-928MHz	-	-	-	-	-	-	-	-	-	-	-	-
GFSK_Nss1_1TX	Pass	AV	2.7827G	41.92	54.00	-12.08	1.19	3	Vertical	230	1.21	-

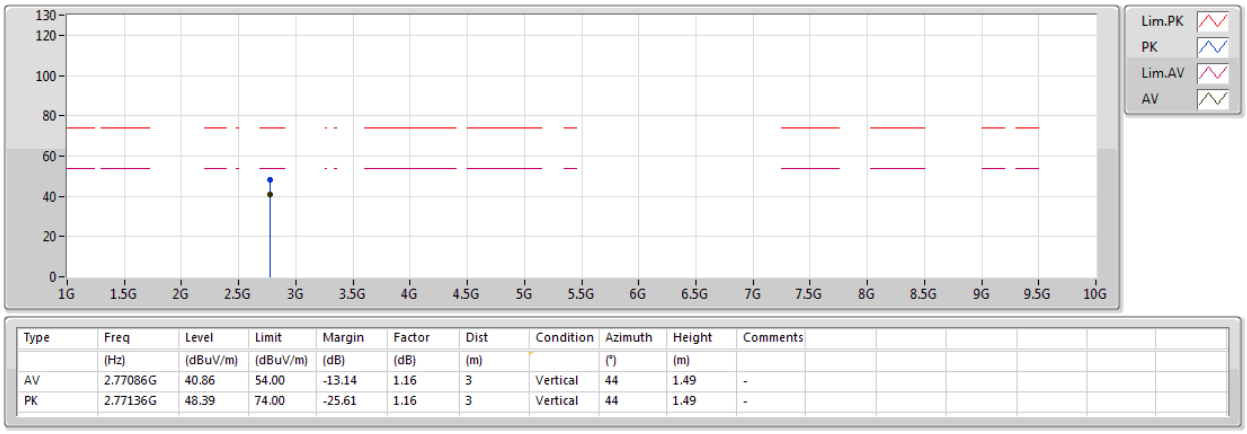
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
GFSK_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-	-
923.6MHz	Pass	AV	2.77086G	40.86	54.00	-13.14	1.16	3	Vertical	44	1.49	-
923.6MHz	Pass	PK	2.77136G	48.39	74.00	-25.61	1.16	3	Vertical	44	1.49	-
923.6MHz	Pass	AV	2.77092G	40.45	54.00	-13.55	1.16	3	Horizontal	136	1.03	-
923.6MHz	Pass	PK	2.77026G	48.17	74.00	-25.83	1.15	3	Horizontal	136	1.03	-
927.6MHz	Pass	AV	2.7827G	41.92	54.00	-12.08	1.19	3	Vertical	230	1.21	-
927.6MHz	Pass	PK	2.78234G	48.04	74.00	-25.96	1.19	3	Vertical	230	1.21	-
927.6MHz	Pass	AV	2.78274G	39.33	54.00	-14.67	1.19	3	Horizontal	141	1.50	-
927.6MHz	Pass	PK	2.7822G	46.64	74.00	-27.36	1.19	3	Horizontal	141	1.50	-

GFSK_Nss1_1TX

923.6MHz_TX

19/09/2018

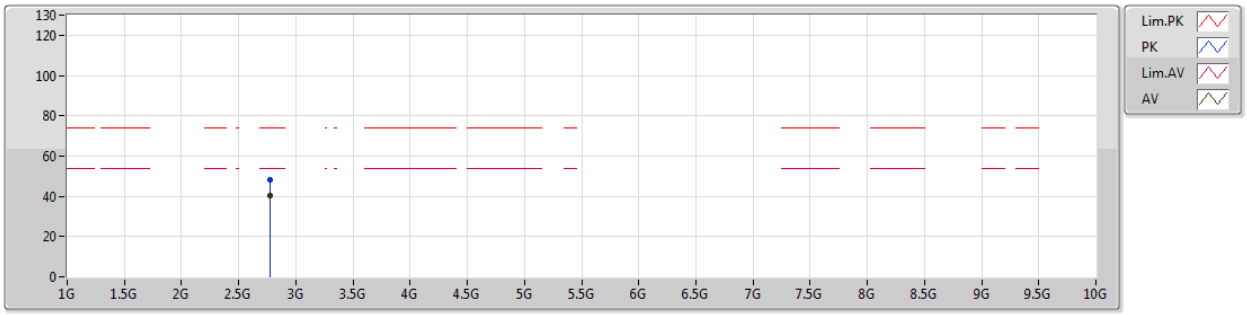


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.77086G	40.86	54.00	-13.14	1.16	3	Vertical	44	1.49	-
PK	2.77136G	48.39	74.00	-25.61	1.16	3	Vertical	44	1.49	-

GFSK_Nss1_1TX

923.6MHz_TX

19/09/2018

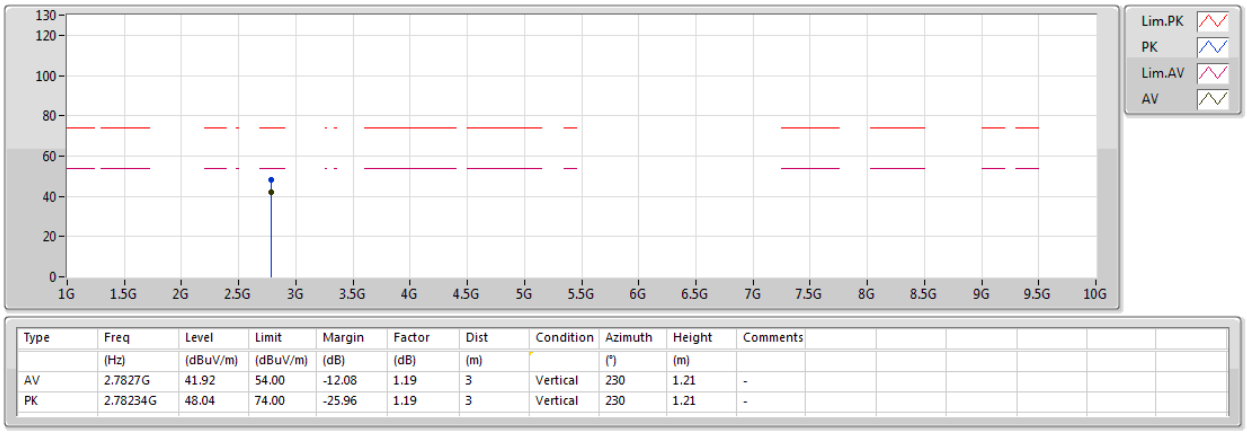


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.77092G	40.45	54.00	-13.55	1.16	3	Horizontal	136	1.03	-
PK	2.77026G	48.17	74.00	-25.83	1.15	3	Horizontal	136	1.03	-

GFSK_Nss1_1TX

927.6MHz_TX

19/09/2018

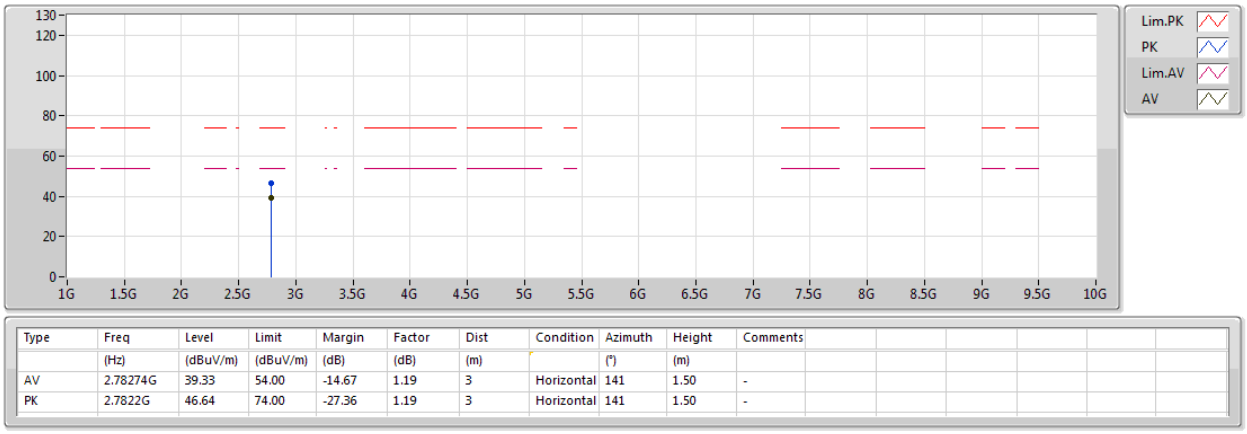


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.7827G	41.92	54.00	-12.08	1.19	3	Vertical	230	1.21	-
PK	2.78234G	48.04	74.00	-25.96	1.19	3	Vertical	230	1.21	-

GFSK_Nss1_1TX

927.6MHz_TX

19/09/2018



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.78274G	39.33	54.00	-14.67	1.19	3	Horizontal	141	1.50	-
PK	2.7822G	46.64	74.00	-27.36	1.19	3	Horizontal	141	1.50	-