

HD-Radio™ subjective interferences

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Subjective interferers



UNCAL
Ref Lvl
80 dB μ V

RBW 500 Hz RF Att 10 dB
VBW 1 kHz
SWT 10 s Unit dB μ V



Car Radio

Micro HiFi

Micro stereo/DAB

JVC KD-HDR1

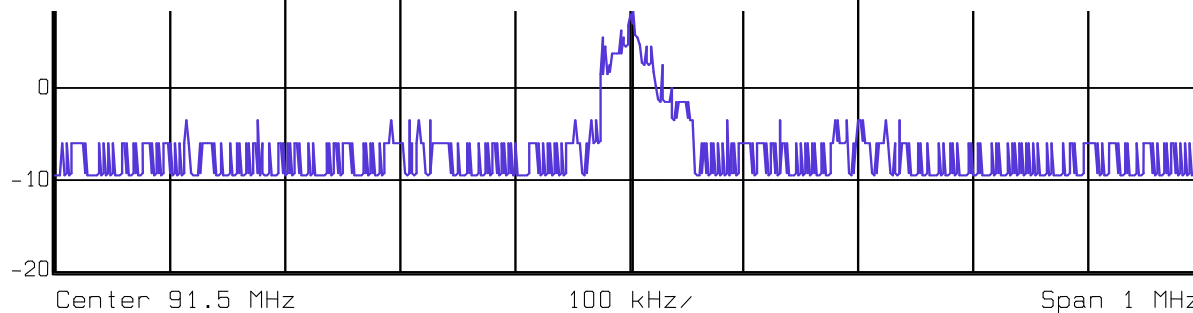
Sanyo DC-DA1000

Philips MCB240

(best)

(near ITU.412)

(worst)



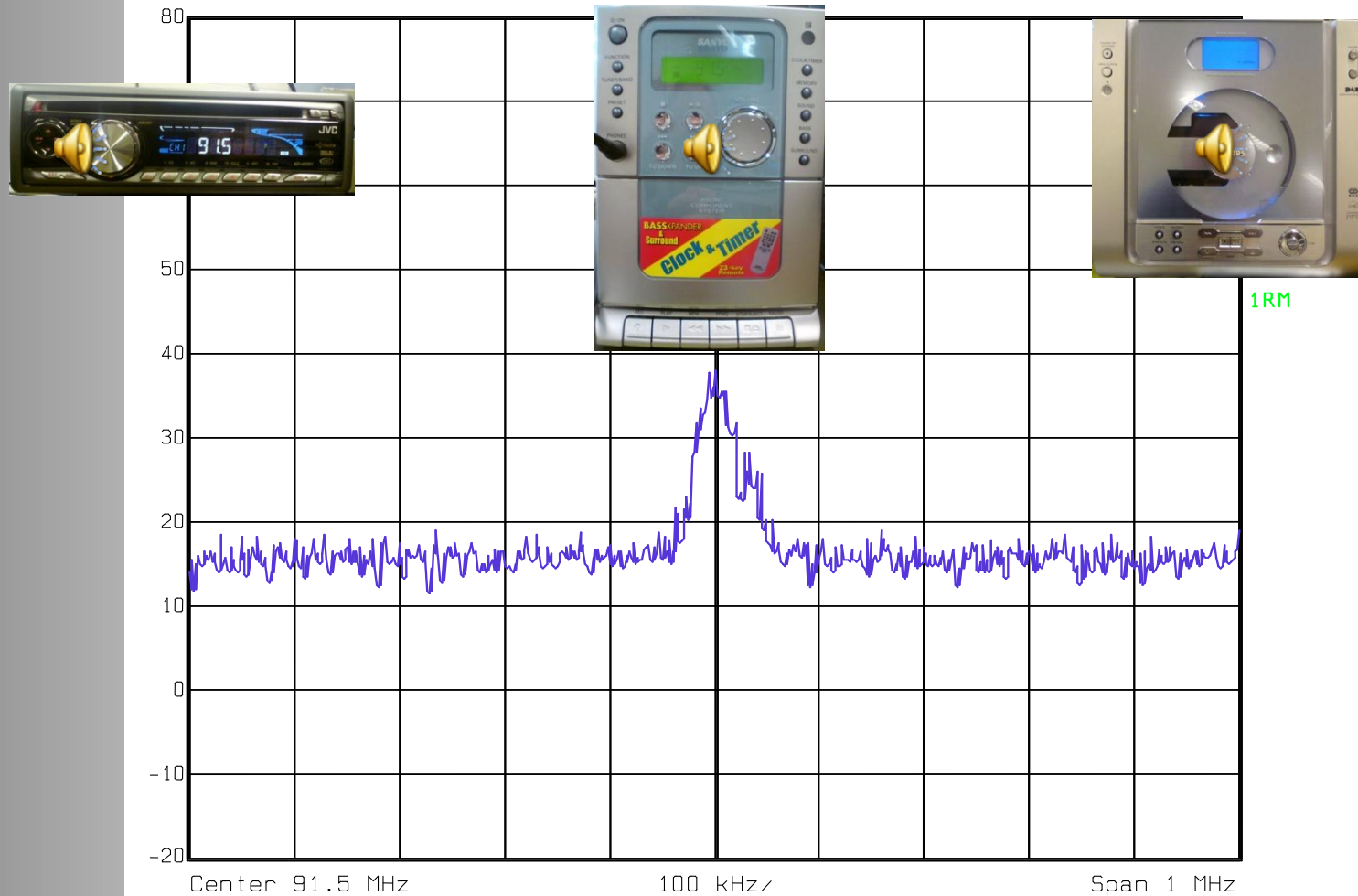
Date: 10.OCT.2009 16:25:45

Subjective interferers



UNCAL
Ref Lvl
80 dB μ V

RBW 500 Hz RF Att 10 dB
VBW 1 kHz
SWT 10 s Unit dB μ V



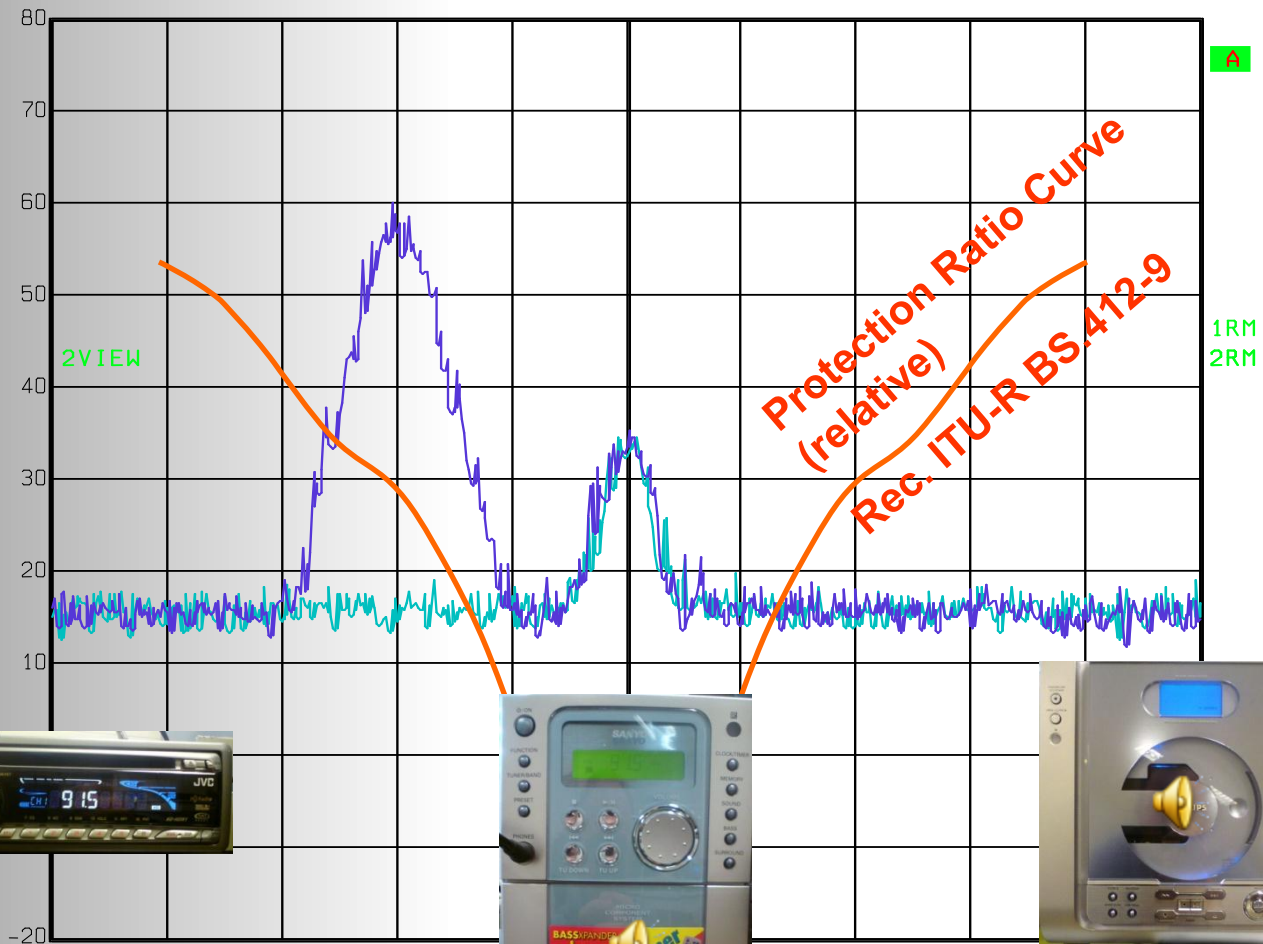
Date: 10.OCT.2009 17:13:11

Subjective interferers



UNCAL
Ref Lvl
80 dB μ V

RBW 500 Hz RF Att 10 dB
VBW 1 kHz
SWT 10 s Unit dB μ V



Center 91.5 MHz

Span 1 MHz

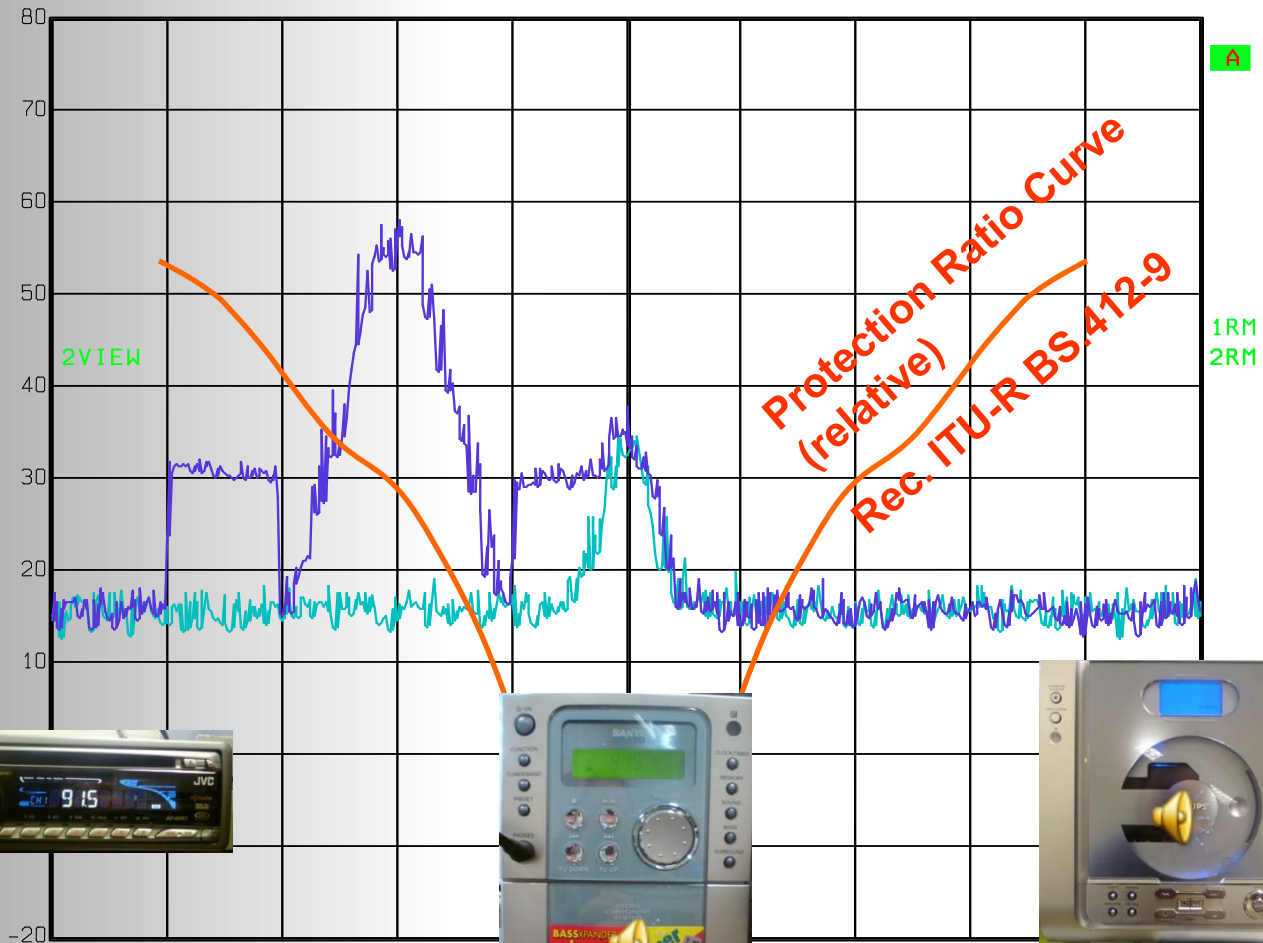
Date: 10.OCT.2009 17:20:19

Subjective interferers



UNCAL
Ref Lvl
80 dB μ V

RBW 500 Hz RF Att 10 dB
VBW 1 kHz
SWT 10 s Unit dB μ V



Center 91.5 MHz

Span 1 MHz

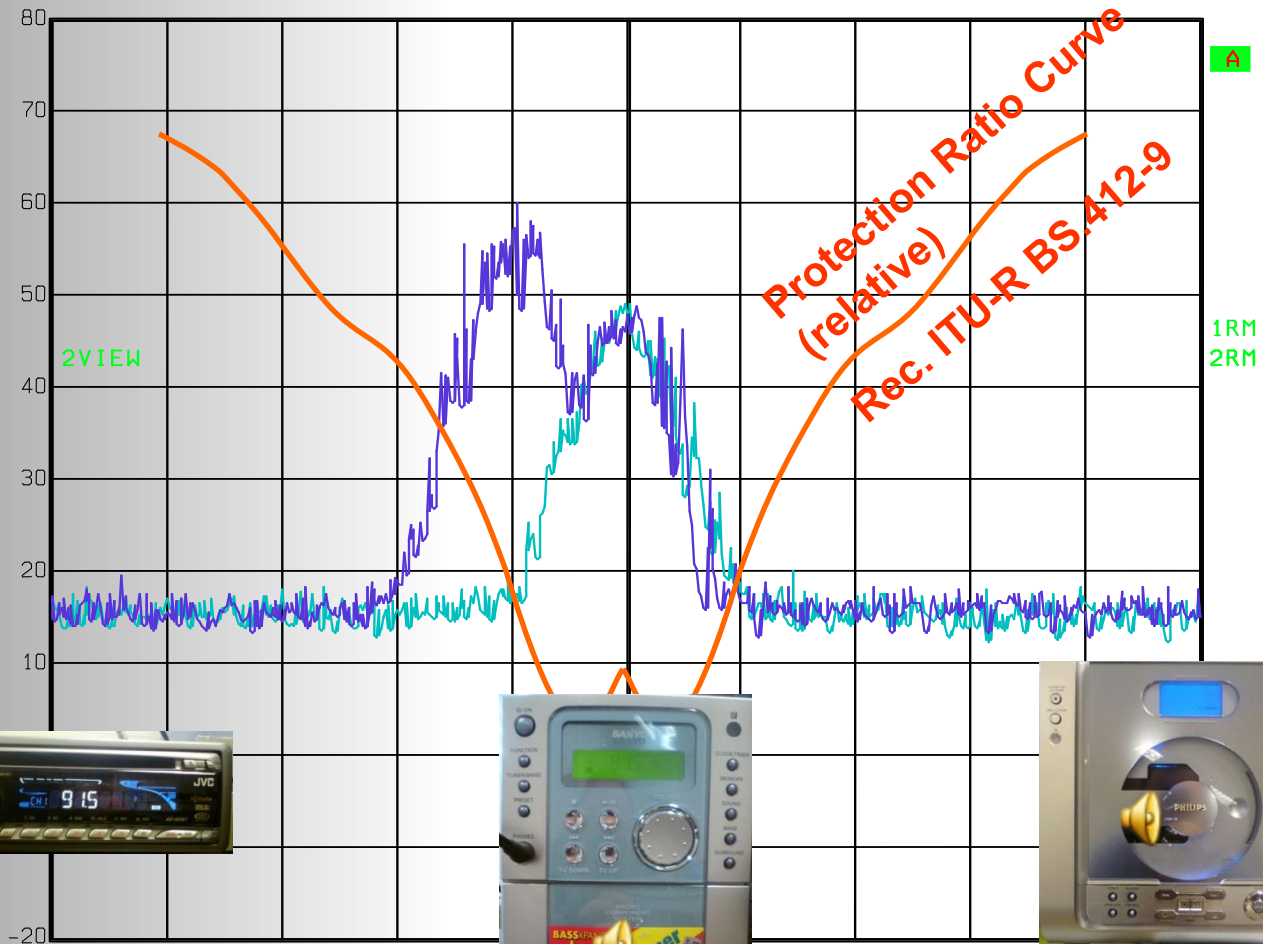
Date: 10.OCT.2009 17:23:08

Subjective interferers



UNCAL
 Ref Lvl
 80 dB μ V

RBW 500 Hz RF Att 10 dB
 VBW 1 kHz
 SWT 10 s Unit dB μ V



Center 91.5 MHz

Span 1 MHz

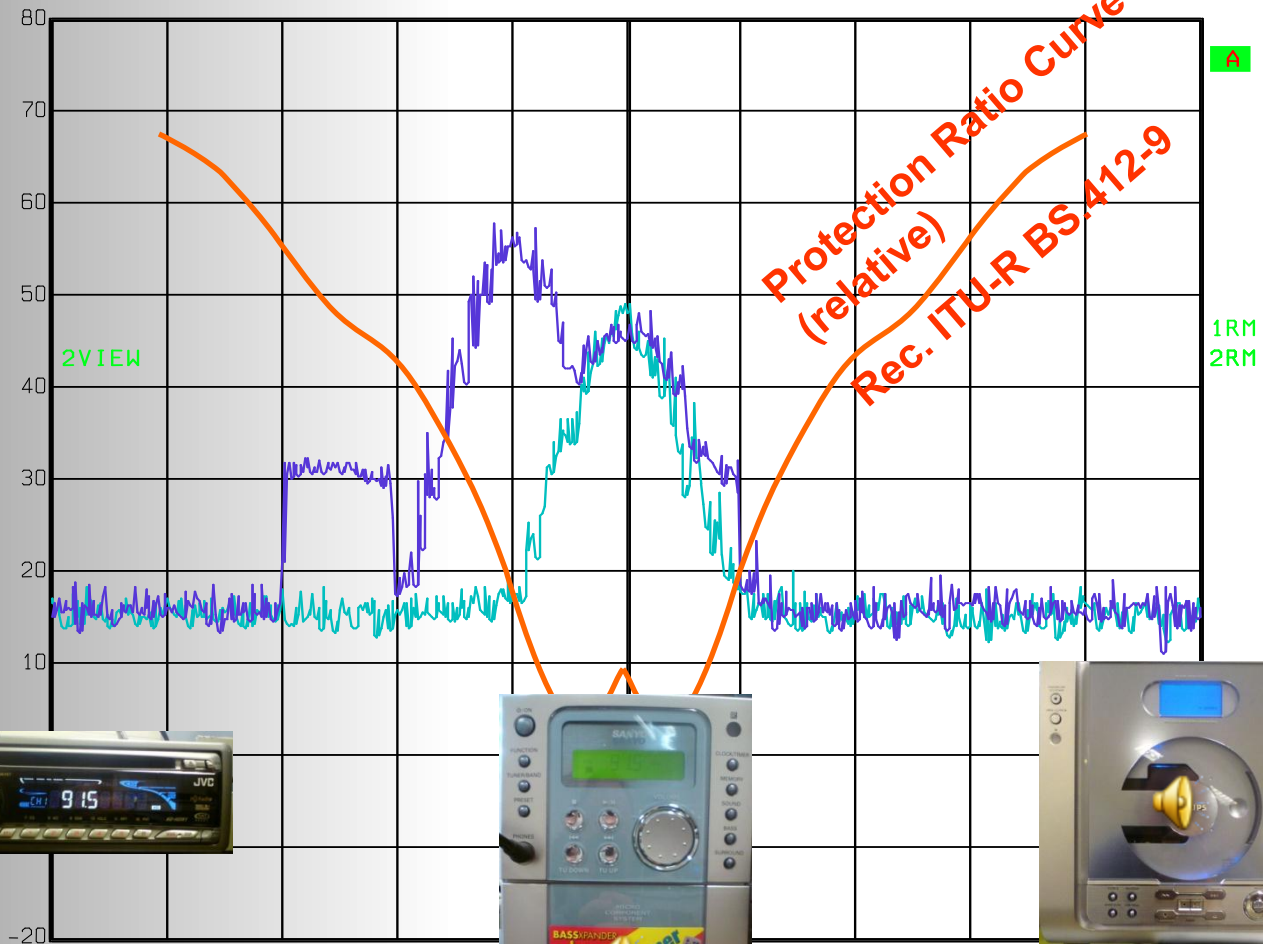
Date: 10.OCT.2009 17:44:40

Subjective interferers



UNCAL
Ref Lvl
80 dB μ V

RBW 500 Hz RF Att 10 dB
VBW 1 kHz
SWT 10 s Unit dB μ V



Center 91.5 MHz

Span 1 MHz

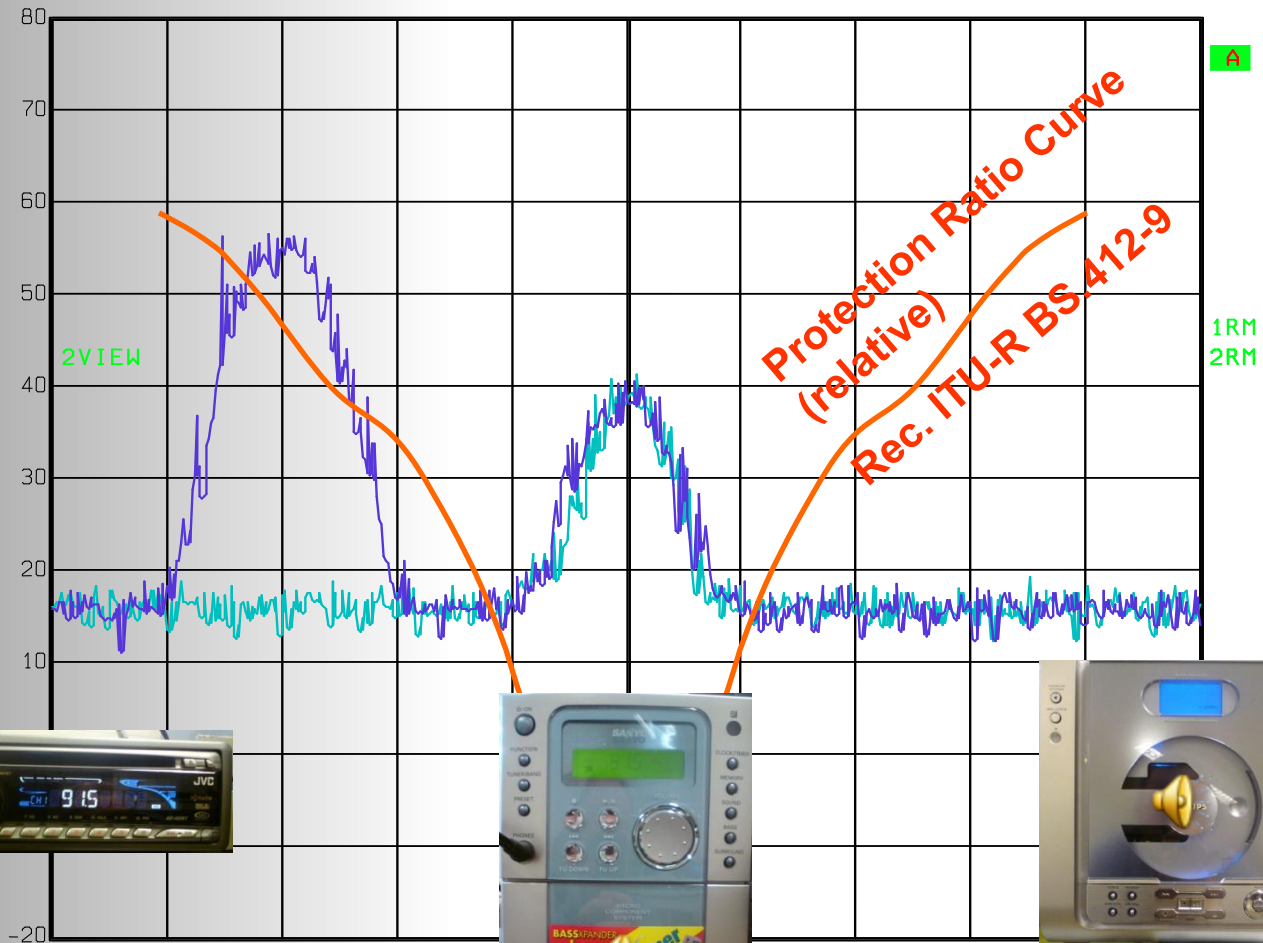
Date: 10.OCT.2009 17:46:58

Subjective interferers



UNCAL
Ref Lvl
80 dB μ V

RBW 500 Hz RF Att 10 dB
VBW 1 kHz
SWT 10 s Unit dB μ V



Center 91.5 MHz

Span 1 MHz

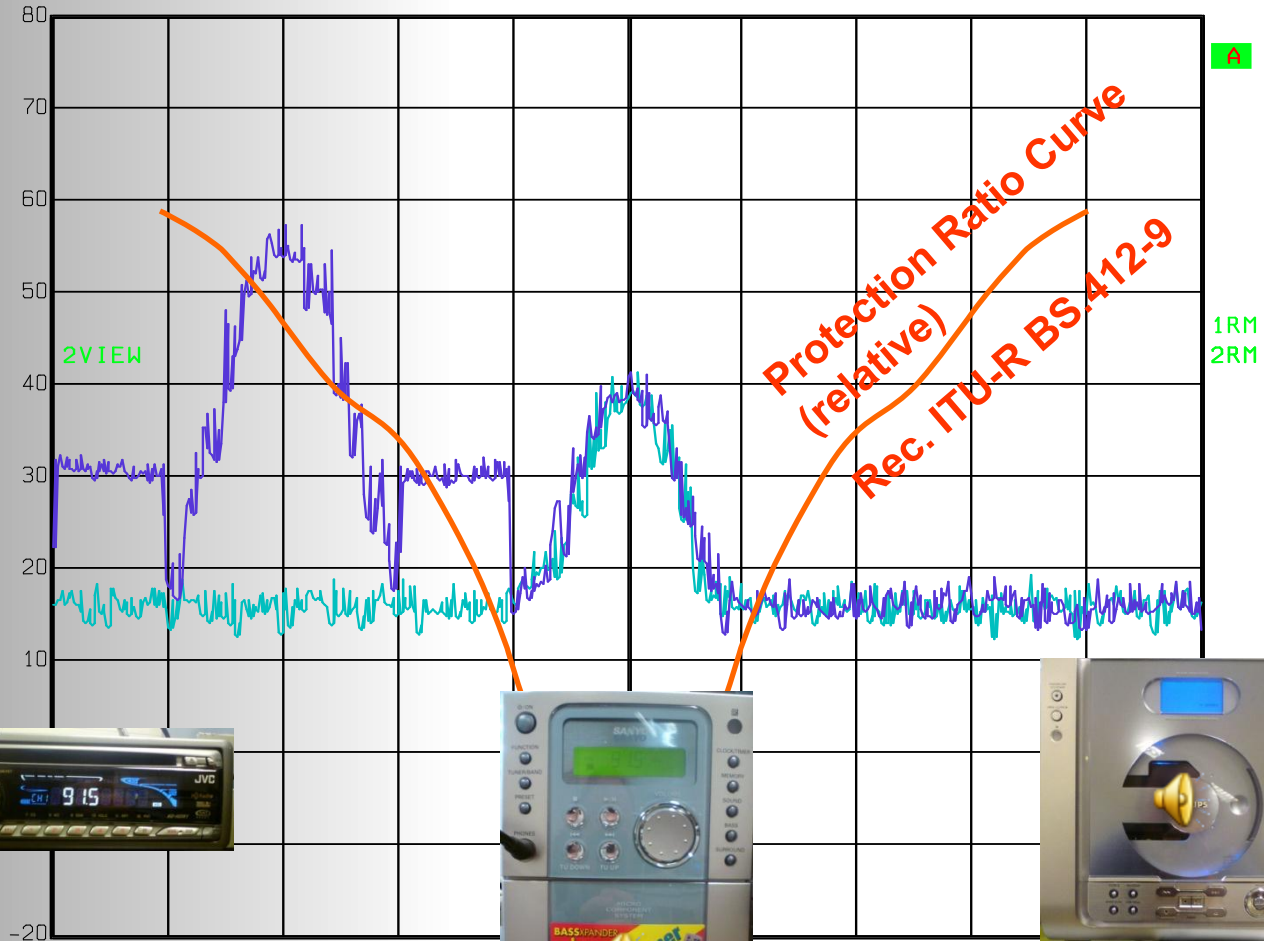
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Subjective interferers



UNCAL
Ref Lvl
80 dB μ V

RBW 500 Hz RF Att 10 dB
VBW 1 kHz
SWT 10 s Unit dB μ V

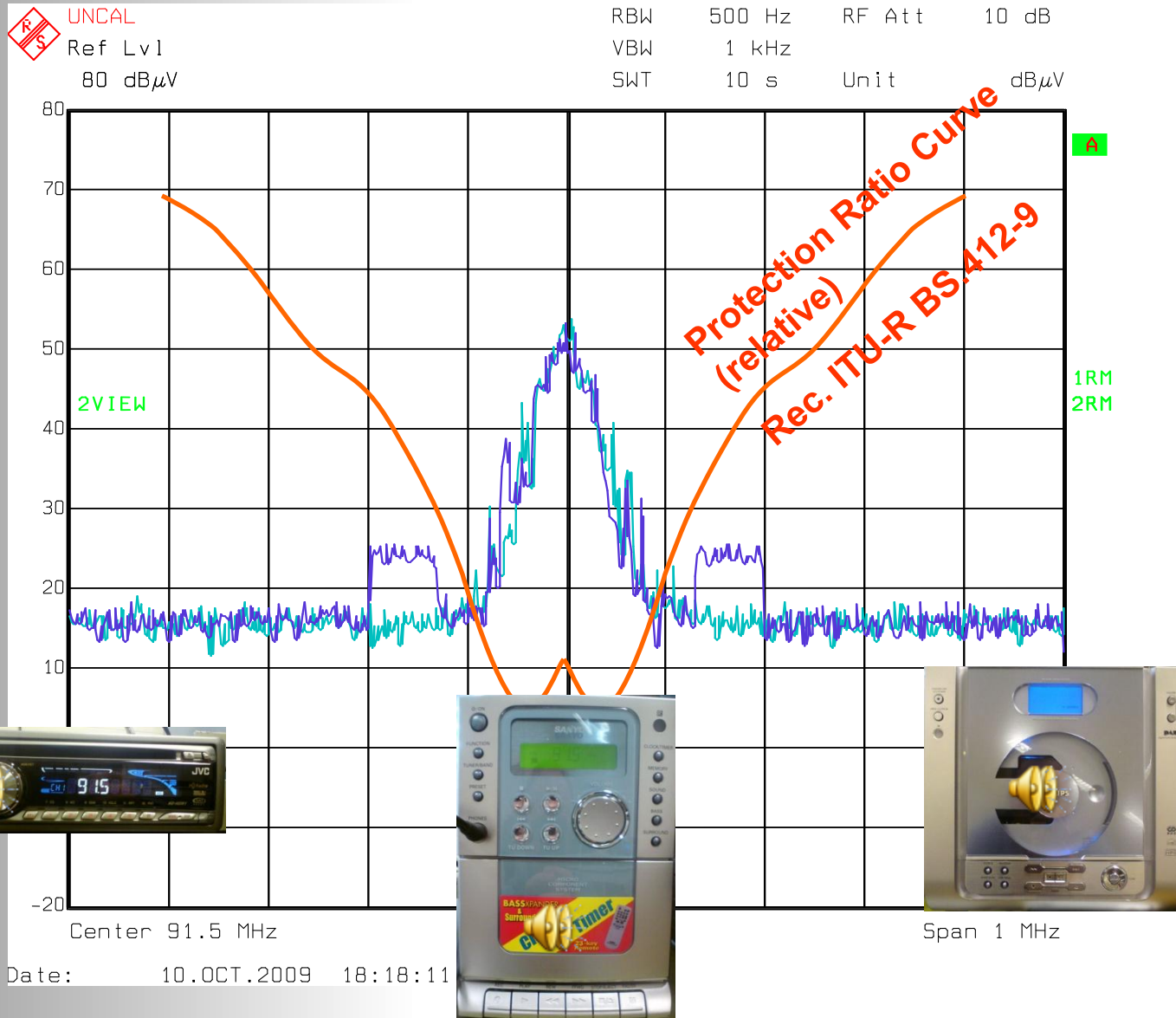


Center 91.5 MHz

Span 1 MHz

Date: 10.OCT.2009 18:05:24

Subjective interferers



The FM receiver Universe

- **The relevant effects on digital to analogue interference due to these differences in the receivers selection ability can be summarized as follows:**
 - **As better (compared to ITU-R BS.412-9) the receivers are, as more susceptible they are in digital to analogue interference.**
(predominantly at a frequency distance of 200kHz and in a noise limited networks)
 - **As worse the receiver selection is at 200 and 100kHz, as more the digital to analogue interference is completely masked by the analogue component of the FM-HD transmitting signal.**
- **In more interference limited networks the good receivers loose their advantage**

Das FM Empfänger Universum

- Die relevanten Auswirkung auf die Schutzabstände entstehen durch die Empfängerwahl und von digitalen zu analogen Störungen entstehen aus dem Unterschied bezüglich der Empfängerwahl und können wie folgt zusammengefasst werden:
 - Je besser (verglichen mit ITU-R BS.412-9) die Empfänger sind, desto empfindlicher sind sie im Analogen Signal auf Digital-Störungen.
(überwiegend bei 200 kHz Abstand und in rauschbegrenzten Netzen).
 - Je schlechter ein Empfänger (bei 100/200 kHz am meisten) ist, desto weniger wird die digitale Störung erkennbar, und die Analog-Komponente des HD (Stör)-Senders überwiegt massiv.
- In stark Interferenz begrenzten Netzen (viele Analoge Sender) verlieren die guten Empfänger ihren Vorteil.

THANK YOU!

Questions?

 **Radio**[®]
DISCOVER IT!

oct. 2009, Lance Eichenberger

RADIO
TREND